

## AUSTRALIAN HYMENOPTERA CHALCIDOIDEA—I.\*

The Family Trichogrammatidæ with Descriptions of New Genera and Species.

BY A. A. GIRAULT.

THIS paper includes the results of a preliminary survey of the family TRICHOGRAMMATIDÆ as found in Australia. Ten new genera and thirty-nine new species are added to our known forms of the group. So far, only three genera (and three species) had been recorded from the continent; herein are included a total of twenty-two genera and forty-five species. As this research has been confined within the space of about four and a half months, it probably does not include more than a large fraction of the forms existing here. The similarity of many of the genera with those of North America is to be expected from the known facts of geographical distribution of animals but the significance of this and other data will be discussed elsewhere. The paper is confined entirely to the systematic results.

All descriptions were made from specimens mounted in xylol-balsam and in normal position. Duplicate specimens will be deposited in the United States National Museum, Washington, D.C., U.S.A.

## DEDICATION.

I respectfully dedicate this little portion of work to science, common sense or true knowledge. I am convinced that human welfare is so dependent upon science that civilizations would not endure without it and that what is meant by progress would be impossible. Also I am thoroughly convinced that the great majority of mankind are too ignorant, that education is too archaic and impractical as looked at from the standpoint of intrinsic knowledge. There is too little known of the essential unity of the universe and of things included, for instance, man himself. Opinions and prejudices rule in the place of what is true. Of many things, only one can be true and it is that fact which is being continually ignored by the ordinary man who is content to hold to his own opinion regardless whether it is right or wrong, to false religions which blind and prejudice him and to political parties which rule him according to their own particular creed of the moment. The individual man must be changed through education; not so much changed as developed and this depends primarily upon himself. It is a fact that the truly educated man has an enormous advantage in life as concerns his ability to detect truth. His nervous system is more sensitive and discriminative and this is very important, since it is through sensation that all knowledge is obtained. He is apt to be unprejudiced and unopinionated, to be rather simple in his tastes,

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EDITORIAL NOTE.—In his dedications and allocations of new names, Mr. A. A. Girault has adopted the somewhat unusual course of introducing philosophical matters of a contentious nature. On these points we must disassociate ourselves, but there are few, we imagine, who will find fault with his dedications in so far as they bring before us many illustrious names on the roll of science.—R. HAMLYN-HARRIS.

requiring not more than the necessities of life, finding pleasure in things which are really worth while and none or but little in things non-essential and superimposed. Too often the graduate of our schools and colleges is not himself or herself naturally developed, but a mere model moulded after a certain crude fashion and most probably with all natural tendencies and abilities dwarfed or badly injured. He or she as concerns the earth upon which a living must be obtained, families reared and moral and social relations maintained, is but yet a child and has yet to learn from that greatest of schoolmasters—Experience. How often too late this Master comes is shown daily in the common experiences of life and the aged vainly try to impress it upon the young, who cannot be taught but must learn.

I have just chanced upon two sentences of worth. One occurs in William Harvey's *The Generation of Animals* and has application here. Harvey himself is an excellent example of a man who trusted in his own sensations to know things and who knew of no other authority in such matters than his own common sense and that of others. His discovery of the circulation of the blood followed as a matter of course from the rise of his own common sensations in dissecting bodies while the men of medicine of his time were accepting what others had said centuries ago, yet performing the same operations as he did. Harvey said, "The method of investigating truth commonly pursued at this time therefore is to be held erroneous and almost foolish, in which so many enquire what others have said, and omit to ask whether the things themselves be actually so or not."

A second sentence occurs in one of the works of Francis Galton and also has application here. Men are extremely variable from their very nature and Galton says "The moral and intellectual wealth of a nation largely consists in the multifarious variety of the gifts of the men who compose it, and it would be the very reverse of improvement to make all its members assimilate to a common type. However, \* \* \* \* there are elements, some ancestral and others the result of degeneration, that are of little or no value, or are positively harmful." And thus, I take it, that if education is to be valuable to society—and that is the only reason for its existence—it should develop rather than mould and development is not an external process but wholly internal to the individual. The inequalities of humans are natural. The laws of society, the rules of education do not abolish them but tend rather to ignore. Stripped of all sentiment, superstition, fancies, dogmas and ancestral prejudices, it must be admitted that men are animals, subject to natural laws like all other animals; these laws in general are inevitable; therefore men must, like other animals, adapt themselves to them and to all the facts of nature. In so far as the mass of men are ignorant of the facts of nature, they may be truly said to be backward and non-adapted. They are not developed and an undeveloped society is in constant danger from itself—the individuals are neither adapted to the earth nor to each other. The mass of men are usually wise enough in a "worldly" way in that they know of human frailties, follies, greeds and passions and are able to maintain themselves, but evolution is a fact and demands more than this from social animals with such highly developed sensibilities as those possessed by mankind.

## HYMENOPTERA CHALCIDOIDEA.

## FAMILY TRICHOGRAMMATIDÆ Foerster.

## SUBFAMILY CHÆTOSTRICHINÆ Girault.

## TRIBE CHÆTOSTRICHINI Girault.

## GENUS BRACHISTELLA Girault.

1. **BRACHISTELLA BICOLOR** new species.

*Female*:—Length, 0.75 mm. ; usual in size for the genus. Yellow with a broad black band across the base of the abdomen.

General color bright pallid lemon-yellow, the proximal half of the abdomen, caudal coxæ excepting tip, proximal two thirds of caudal femora, pronotum and a spot on the mesopleurum, velvety black. Eyes and ocelli bright red ; proximal club joint dusky ; fore wings sooty out as far as the end of the venation but fumated irregularly, a large clear area under the marginal vein, the fumation accented in two tranverse bands, one at the stigmal vein (fading caudad and interrupted) and one across the distal end of the submarginal vein. Remaining portions of antenna and legs concolorous with the body. Posterior wings slightly fumated across the venation.

Similar to the American species *acuminata* (Ashmead) but differing as follows : At first in details of coloration ; thus the abdomen is black at base, not appearing striped all the way down, the fore wings are fumated proximad (not so in *acuminata*, though in some cases with that species the substigmal spot extends entirely across the wing ; the remaining portion of the wing proximad, however, remains clear) and the caudal coxæ and femora are dusky black, wholly or in part, the mesonotum immaculate. Structurally, the fore wings of *bicolor* differ in that they are somewhat narrower, their marginal cilia somewhat longer ; the proximal funicle joint of the antenna is longer. The posterior wings though similar in shape are much narrower. Otherwise the two species are the same. In habitus they are very much alike. The mandibles of *bicolor* are tridentate, the meso-phragma is present, the strigils absent, the parapsidal furrows complete, the fore wings at their broadest portion bearing about twenty lines of discal ciliation which is normally arranged, not in regular lines. The antennæ, as usual, apparently\* bear two ring-joints and with the exception of the somewhat longer proximal funicle joint are very similar to those of *acuminata*.

(From a single specimen,  $\frac{2}{3}$ -inch objective, 1-inch optic, Bausch and Lomb.)

*Male*:—Unknown.

Described from a single female specimen captured from the panes of a window in workmen's quarters on a sugar farm near Nelson, N.Q., December 19, 1911.

*Habitat*: Queensland (Nelson near Cairns).

*Type*: The single female as above, mounted in balsam and in the Queensland Museum, Brisbane, No. Hy/774.

\* There are two ring-joints.

GENUS *ABBELLA* Girault.1. *ABBELLA SUBFLAVA* Girault.

I have a single specimen of this genus which I cannot distinguish from specimens of *subflava* excepting as follows :

The general coloration differs in that there is present in the Australian specimen but very little black, namely only a longitudinal dash leading ventrad and slightly mesad from the ventral apex of the eyes and along the cephalo-lateral margin of the pronotum ; the distal tarsal joints are only slightly dusky but the substigmal spot of the fore wing is much darker being velvety black or sooty in color, only embrowned in *subflava*. Specimens of *subflava* frequently lack the black and I do not consider the difference sufficient to warrant separation.

The specimen from Australia is larger than the American specimens.

This specimen was captured from the windows of an empty dwelling at Herberton, N.Q., December 28, 1911. The presence of *subflava* in Australia can be readily explained since it is known to be parasitic on jassid eggs occurring in the straws of that most widely distributed of plants, cultivated wheat. This crop is grown extensively in Queensland, especially back from the coast and as I expected, to some extent at Herberton and vicinity. The species of parasite is widely distributed in the United States of America.

Subsequently a second female was found which had been captured from a window in a granary on a wheat farm at Roma, Queensland, October 6, 1911 and a third one at Townsville by sweeping grass, July 11, 1912 ; the wings of this specimen were missing and the spots on the abdomen more distinct and larger.

*Habitat* : Australia—Queensland (Herberton, Townsville and Roma) ; North America—District of Columbia, Illinois and Washington.

2. *ABBELLA XANTHOGASTER* new species.

*Female* :—Length, 0.70 mm. ; usual in size for the genus.

General color brown, the metathorax and abdomen white tinged with yellowish, the abdomen with a faint row of dusky spots along its whole lateral aspect ; legs concolorous with abdomen but the femora are dusky as are also the cephalic coxæ ; antennæ brown ; vertex with some yellow ; eyes and ocelli ruby red ; substigmal spot as in *subflava* ; wings otherwise uniformly slightly fumated throughout ; venation pallid. Face darker.

The same as *subflava* except as already indicated in regard to coloration and as follows : The discal ciliation of the fore wing is finer and somewhat more dense (by about four more lines). Otherwise I cannot distinguish between them.

(From a single specimen, the same magnification.)

*Male* :—Unknown.



Described from a single female specimen captured by sweeping miscellaneous vegetation in the outskirts of Roma, Queensland, October 5, 1911 (A. A. Girault). It may be a variant of *subflava* but I doubt it.

*Habitat* : Australia—Queensland (Roma).

*Type* : The above specimen remounted in balsam from alcohol and in the Queensland Museum, Brisbane. No. Hy/776.

#### NEOBRACHISTA new genus.

*Female* :—Head normal, the ocelli arranged in a small triangle in the centre of the vertex, the lateral ocelli distant from the eye margins, the antennæ inserted below the middle of the face, 8-jointed—scape, pedicel, 2 ring-joints, 1 funicle joint and a 3-jointed club, somewhat as in *Ufens* Girault and *Brachistella* Girault, the funicle joint longer than wide, the scape short, compressed, swollen ventrad; pedicel cylindrical oval, longer than wide, like the funicle but slightly longer; ring-joints subequal, very short, narrower than the funicle; club cylindrical oval, the middle joint the longest of the three, the distal joint not ending in a seta; pubescence of antennæ moderate. Fore wings moderately broad, moderately broadly rounded, somewhat as in *Ufens* Girault, only three or four lines of the discal ciliation regular and distinct, the rest of the ciliation moderately dense and normal for the Chalcidoidea, the marginal cilia slightly longer than in *Ufens*, moderately short, the longest (caudo-distad) not more than an eighth of the greatest wing width; venation much as in *Ufens*, the submarginal vein very long, changing direction slightly distad of its middle, at the angle thickened and with a prominent spinelike prolongation caudad; the marginal vein very short and straight, barely longer than its own width and distinctly much shorter than the moderately long stigmal vein which has a distinct neck. Posterior wings short and moderately broad, bearing six lines of discal ciliation. The thorax subequal in length to the abdomen, the pronotum normal but when extended long and conical, the thorax with complete parapsidal furrows; abdomen cylindrical ovate, the ovipositor long, inserted near its base, the tip of its valves barely projecting beyond the abdomen. Legs normal, the proximal tarsal joint long, distinctly longer than either of the other two; strigils and also, apparently, cephalic tibial spur, absent. Oblique line of discal ciliation in the fore wing complete. No median sulcus on thorax (though apparently so in dried specimens). Mesophragma present. Mandibles tridentate, the two lateral teeth acute.

*Male* :—The same as the female but the abdomen is rectangular in shape and somewhat depressed, the club joints of the antennæ somewhat larger.

A genus in respect to the venation, which casually appears to be bowlike as in *Trichogramma*, likely to be somewhat confused with *Calleptiles* Haliday of the other subfamily. It is closely allied with *Ufens* Girault and *Brachista* Haliday but differs from all genera of its tribe in bearing 8-jointed antennæ with one funicle joint (excepting *Brachista*) and a very short marginal vein. Both ring-joints are not always visible and great care must be used in determining their presence. It may be *Brachista* Haliday but I doubt it.

*Type* : The following species.

1. **NEOBRACHISTA FASCIATA** new species.

*Female* :—Length, 1.00 mm. ; large for the family.

General color chrome-yellow, the abdomen striped transversely with dusky black (sometimes wholly dusky in dead specimens), the occiput, pronotum and cephalic margin of mesoscutum dusky, the eyes and ocelli bright garnet, the legs concolorous with body but sometimes the tibiae and coxæ pallid on the cephalic legs, the femora and tibiae of caudal two pairs of legs olivaceous, the antennæ concolorous but tinged with olivaceous, the club dusky ; venation dusky. Wings hyaline with only very slight traces of fumation under the submarginal vein, very slightly more noticeable under the angle of that vein. Distal tarsal joints dusky. As many as seven stripes across the abdomen, the second and third emarginate at the meson.

Thorax lightly, polygonally sculptured, the vertex finely transversely lined ; fore wings bearing about twenty-two lines of discal ciliation, the posterior wings six lines of which a cephalic two are paired at the cephalic margin and more distinct, a middle two less distinct and less close to each other and a paired line near the caudal wing margin, all the lines complete or nearly. Posterior marginal cilia of caudal wing about a third longer than the longest marginal cilia of the fore wing and over thrice the length of the cilia of the cephalic margin but still not longer than the width of the blade of the caudal wings. Pubescence of body very sparse ; four long setæ arise from both the mesoscutum and the mesoscutellum. A single straight line of discal ciliation in the subcostal cell (about 9 cilia) and a slender one leading proximad from the angle of the submarginal vein (three large cilia plus two minute ones).

(From three specimens, the same magnification.)

*Male* :—The same, the abdomen black.

Described at first from three female specimens captured from the panes of a window in workmen's quarters on a sugar farm, near Nelson, N.Q., March 31, 1912.

Subsequently, a female which I had placed as a new species of *Ufens* but whose antennæ were not visible, was found ; it was captured by sweeping in a jungle near Cooktown, N.Q., February 2, 1912 and on April 10, 1912 at Nelson near Cairns, one male and two females ; April 17, two females, all on windows in men's quarters on a sugar farm ; also a male in the same place, April 20 and a female May 18, 1912.

*Habitat* : Queensland (Nelson near Cairns and Cooktown).

*Types* : The three females mentioned above (March 31), in the Queensland Museum, Brisbane, No. *Hy*/781. One slide.

GENUS **UFENS** Girault.1. **UFENS PICEIPES** new species.

*Female* :—Length, 0.75 mm. ; moderately large for the genus to moderate.

Similar to *niger* (Ashmead) in all details but differing in having the legs more colored, the tibiae dusky black and the femora of all the legs still darker (not the posterior femora only as in

the type species); also the distal tarsal joints are dark and sometimes the distal two. In *niger*—as mentioned in its original description—the scutellum is orange, not so in this species but here the vertex and the dorsal half of the face are orange. Tips of tibiæ, knees and trochanters pallid. The fore wings are also broader (about 30 lines of cilia across the widest blade portion). Otherwise, I cannot distinguish between the two.

(From two females, the same magnification.)

*Male* :—Unknown.

Described from two females captured from the pane of a window in a barn, State Farm, Roma, Queensland, 6 October, 1911. This is the second Australian species closely allied with the type species, which, so far, is known to occur only in the United States of America. Subsequently, another female was found, taken at the same place, the same time.

*Habitat* : Queensland (Roma), Australia.

*Type* : One female in balsam, October 6, 1911, Queensland Museum, Brisbane, No. Hy/777.

## 2. UFENS FLAVIPES new species.

*Female* :—Length, 0.75 mm. ; moderate to moderately large for the genus.

Similar to *piceipes* but all of the tarsi and the tibiæ are pale yellowish ; also the cephalic femora and distal halves (or less) of the other femora. The marginal vein of the fore wing is uniform in width, short, barely much more than twice longer than broad. The caudal marginal cilia of posterior wing are not as long as the greatest width of those wings.

The discal ciliation is less dense, the lines distinct and separate.

(From four specimens, the same magnification.)

*Male* :—The same, but the antennæ 9-jointed, bearing long, scattered hairs, the flagellum more uniform in width.

(From one specimen, the same magnification.)

Described from one male and six female specimens captured from the pane of a window in men's quarters on a sugar farm near Nelson, N.Q., December 4, 9 and 16, (3 ♀'s), 10 (1 ♂), 1911. Another female December 13, 1911 from a window in the School of Arts at Nelson. Still another female at Nelson, January 1, 1912 on a window ; and another by sweeping floor of forest along the coast opposite Double Island, near Cairns, December 24, 1911.

*Habitat* : Queensland (Nelson near Cairns).

*Types* : No. Hy/778, Queensland Museum, Brisbane, one male as above, one female (Dec. 16), two slides.

3. **UFENS LUNA** Girault.

Girault, 1911, pp. 198-199.

Perth, West Australia.

4. **UFENS HERCULES** new species.

*Male*:—Length, 0.80 mm.; very broad for the genus, large and robust for the family. General color deep black, only the base of the abdomen narrowly contrasting and yellow; vertex suffused with brown. Wings wholly hyaline; tarsi, knees and tips of tibiae white tinged slightly with yellowish. Venation black; eyes and ocelli red. Genitalia concolorous with body. Tip of antennae slightly more pallid.

Agreeing with *piceipes* in coloration nearly but the black is deeper; differing from all species of the genus by its unusually larger size and in the discal ciliation of the fore wing and the latter's great width. Thus, as compared in this respect with *piceipes*, the fore wings in *hercules*, though much wider, yet bear less lines of discal ciliation, the ciliation less dense, all the lines standing out distinctly and separated from each other (about 22 distinct radiating lines); also the marginal cilia of the fore wing in *hercules* are larger and farther apart; moreover in the posterior wing of *hercules*, which by the way is distinctly broader than in *piceipes*, the posterior marginal cilia are distinctly shorter, the longest distinctly not as long as the greatest width of the blade (distinctly longer in *piceipes*). From *flavipes*, besides the obvious differences in coloration and size, *hercules* differs in bearing a longer marginal vein, more distinct discal ciliation but nearly the same shaped posterior wing. It falls in between *piceipes* and *flavipes*. Mandibles tridentate. Posterior tibiae more hispid than usual.

(From one specimen, the same magnification.)

*Female*:—Unknown.

Described from a single male specimen mounted in balsam and captured from the window of a carhouse in the railway station at Mareeba, N.Q., January 2, 1912 (A.A.G.).

*Habitat*: Australia—Mareeba, Queensland.

*Type*: No. Hy/779, Queensland Museum, the above male in xylol-balsam (mounted with single specimens of two species of *Aphelinoidea*).

DIAGNOSTIC ARRANGEMENT OF THE AUSTRALIAN SPECIES OF *UFENS* GIRAULT.

## FEMALES.

## I. Posterior wings with only three lines of discal cilia.

1. Fore wings with the discal ciliation dense, the lines close together, a few standing out peculiarly distinct.

Fore wings moderately broad, bearing about thirty lines of discal cilia; vertex orange; all of the legs black, excepting articulations, tips of tibiae and two proximal joints of tarsi. Antennal club normal. Longest marginal cilia of posterior wing longer than the greatest width of the blade . . . *piceipes* Girault.

2. Fore wings with the discal ciliation less dense, all of the lines distinct and separate. Posterior wings normal, not convexly bevelled off at apex of caudal margin, the marginal cilia not abruptly shortening there.

- Marginal vein short, legs mostly pallid, vertex orange or yellow, fore wings hyaline; antennal club normal; longest marginal cilia of the caudal wing subequal to greatest width of the blade .. .. . *flavipes* Girault.
- Marginal vein longer, usual in length; legs mostly black. A narrow yellow band across base of abdomen. Fore wings hyaline, broad and pyriform. Caudal wings broad, distinctly broader than their longest marginal cilia. Large species, antenna normal (male) .. .. . *hercules* Girault.
- Posterior wings more obtuse, bevelled off convexly caudad at tip, at this curve the marginal cilia abruptly shortening.
- Marginal cilia of fore wing very short; fore wings slightly fumated proximad; legs mostly pallid .. .. . *luna* Girault.

GENUS JAPANIA Girault.

1. JAPANIA TRISTIS new species.

*Female*:—Length, 0.80 mm.; large for the genus.

General color black, marked with orange-yellow and whitish as follows: Vertex orange-yellow; proximal ends of femora, knees and tips of all tibiæ silvery white contrasting with the blackness of the legs; proximal two tarsal joints darker but pallid. Antennæ and venation dusky; eyes and ocelli carmine. Wings hyaline.

Differing from the Chinese species, *ovi* Girault, in having the valves of the ovipositor slightly exerted and the tibiæ of the legs black except at tip and the cephalic aspect of the head for the most part black. Also in bearing a longer stigmal vein which here is subequal to the marginal in length. Fore wings moderate in width, somewhat as in *Ufens picipes* but the marginal cilia are longer, moderately short, the marginal and stigmal veins longer, the discal ciliation less dense. Fore wings bearing about 18 longitudinal lines of discal ciliation across its widest blade portion, the ciliation in regular lines; the curved oblique line leading back from the stigmal vein bearing about six cilia; fore wings oblately rounded at apex; stigmal vein long, its uncus pointing disto-cephalad. Posterior wings rather short and broad, bearing three lines of discal ciliation, two of which are in the cephalic half of the blade and more distinct than the third which includes slenderer cilia and the latter are farther apart in the line; marginal cilia along cephalic margin very short, those at the caudal margin moderate in length, the longest slightly longer than the greatest width of the blade and about twice the length of the marginal cilia of the fore wing which are nearly uniform and longest around the apex to the caudal margin; marginal cilia at apex of the posterior wing much shorter than the caudal cilia but about twice the length of the short cephalic marginal cilia. Cephalic margin of posterior wings straight, the apex obtuse.

Tarsal joints moderately long, lengthening distad, shorter on the cephalic legs; tibial spur single, straight, apparently absent on cephalic legs (the strigil absent), on intermediate legs long and slender, subequal to the proximal tarsal joint; short on caudal legs. Parapsidal furrows complete; mandibles with at least two teeth. Abdomen slender, conic-ovate, longer than the head and thorax combined, the ovipositor very long, inserted far up near the base of the abdomen and a small portion of the tips of its valves is exerted beyond the apex of the abdomen which is pointed and slender. Ocelli in a line across the vertex.



Antennæ 8-jointed—scape, pedicel, 1-ring joint, 2-jointed funicle and 3-jointed club. Pedicel about half the length of the scape, long-obconic, distinctly over twice the length of the short funicle, whose two joints are transverse and subequal, each over twice wider than long. Funicle much shorter than any of the club joints, the latter about subequal in length, the distal joint conic and somewhat the longest, not terminating in a spine.

(From one specimen, the same magnification.)

*Male* :—Unknown.

Described from a single female specimen taken from the windows of a foundry at Mareeba, N.Q., December 26, 1911. The funicle of this species has somewhat the twisted appearance normal in *Ufens* but it is very much shorter than in that genus.

*Habitat* : Queensland (Mareeba).

*Type* : No. Hy/775, Queensland Museum, Brisbane, the forenoted female on a slide.

#### GENUS OLIGOSITA Haliday.

##### 1. OLIGOSITA AUSTRALIENSIS new species.

Fore wings perfectly transparent, hyaline and naked.

*Female* :—Length, 0·60 mm. ; moderate in size for the genus.

General color uniformly pale lemon-yellow, immaculate, the eyes and ocelli dark reddish, the tips of the mandibles fuscous. Venation of fore wing more intense in color, the marginal, stigmal and distal ends of the submarginal veins, intense lemon-yellow. Wings very transparent and without discal ciliation ( $\frac{1}{6}$ -inch objective), fuscation or substigmal spots. Face slightly paler. Vertex and distal joint of antennal club slightly dusky.

Fore wings moderately broad and their longest marginal cilia are somewhat shorter than the wings' greatest width ; the cilia are long. Stigmal vein short, sessile, bladder-shaped and its uncus terminal, forming a pointed apex which proceeds cephalo-distad. Parapsidal furrows complete. Ovipositor not exerted. Posterior wings narrow, bluntly pointed, without discal ciliation but with very long marginal cilia, those of cephalic margin distad over twice the blade's greatest width, gradually lengthening around the apex, along the caudal margin longest, nearly as long as the longest cilia of the fore wing and about four times the blade's greatest width. Tarsal joints of anterior legs moderate in length but much longer than wide, subequal ; in the two posterior pairs of legs, unequal, the proximal joint lengthening and longer than the others. Mandibles with two distinct, equal, subacute lateral teeth and a third, much smaller one. No strigils. Eyes naked. Antennæ 7-jointed, as in the other species ; the single funicle joint is distinctly smaller than the proximal club joint, while the latter is only three fourths the length of the long pedicel. Antennal club at apex armed as with *sanguinea* Girault but the visible and conspicuous seta is shorter and less noticeable. The posterior femora are somewhat enlarged.

Abdomen long, conic-ovate, the ovipositor long but not exerted.

*Male* :—Unknown.

Described from a single female specimen captured from the panes of a window in a field laboratory, established in a room in a hotel at Nelson (Cairns District), N.Q., November 14, 1911.

*Habitat* : Australia—North Queensland (Nelson).

*Type* : No. Hy/782, Queensland Museum, Brisbane, the forenoted female on a slide.

This species differs from all others of the genus so far as known, excepting *collina* Haliday, *staniforthii* Westwood and *nodicornis* Westwood, by lacking a substigmal spot. Its characteristics are the immaculate uniformity of coloration, the clear and naked fore wings bearing long marginal fringes, the shape of the stigmal vein and the very long marginal fringes of the posterior wings, especially those of the cephalic wing margin (usually very short). The species of course resembles the American forms closely as regards its habitus but is distinct from any of them.

### 2. OLIGOSITA AMERICANA (Ashmead) Girault.

I have captured at Roma, Queensland what are undoubtedly two females of this species, described several years ago from North American specimens (from Illinois, U.S.A.). They were running over the panes of a window in a barn on the State Farm. Since the latter is devoted to experimental breeding of wheat and since *americana* is parasitic upon jassid eggs found within wheat stems, its occurrence here is the more understood but its nativity now becomes somewhat obscured, if it was not doubtful from the first. Subsequently another dwarfed female was taken from a window in a wool-house at Brisbane, Queensland, October 3, 1911.

*Habitat* : Australia—Queensland (Brisbane and Roma) ; North America.

### 3. OLIGOSITA MINIMA new species.

*Male* :—Length, 0.28 mm. ; very small for the genus and minute for the family. General color uniformly intense lemon-yellow, the legs all pallid yellow, the antennæ concolorous with the body but the distal club joint is dusky. Eyes and ocelli brownish red. Fore wings slightly clouded out as far as the venation apex and with a distinct comma-like dusky spot involving the stigmal vein and whose apex is turned.

Differs from all species of the genus in its minute size and in the structure of the fore wing which has peculiarities not known to be present in any other member of the genus. Along the posterior margin of the fore wing at a point just slightly caudad of the apex of the marginal vein there is a distinct break in the margin made by a re-entering curve, the margin changing from a convexity to a sloping concave curve, which continues distad until the apical curve of the margin is reached ; this peculiarity is obscurely indicated in other species (e.g. *americana*) but here it is distinct ; it looks as though the wing had been stood upon its edge and a piece sliced off its caudal margin with a knife. The fore wings are moderate in size, their marginal ciliation long, the longest (disto-caudad) distinctly longer than the greatest width of the blade (which is just where the curve of the apex begins) but not very much more so ; the discal ciliation of the fore wing is absent or nearly but there is a more or less distinct, short line at the cephalic margin from the apex of the

marginal vein containing about five cilia ; toward its end it becomes paired, the second line including about three cilia ; disto-caudad of its apex are two cilia in a longitudinal line ; otherwise, cilia apparently absent. Caudal wings are entirely naked discally ; their cephalic marginal cilia are very short, those of the caudal margin moderate in length, the longest about two thirds the length, or slightly more, of the longest cilia of the fore wings. Marginal and submarginal veins long, subequal, the stigmal vein with a very short neck. Parapsidal furrows complete. Other structural characters normal for the genus. Tarsal joints moderate, the distal one slightly longest of the three ; strigil absent. Mandibles distinctly tridentate.

Antennæ 7-jointed and normal for the genus ; the pedicel is rather long, three fourths the length of the scape and nearly twice the size of the single funicle joint which is one and two thirds longer than wide ; proximal club joint transverse, about half the length of the intermediate joint ; club terminating in several slender setæ. Abdomen conical. Mesophragma present. Ring-joint very short, inconspicuous.

(From two specimens,  $\frac{1}{8}$ -inch objective, 1-inch optic, Bausch and Lomb.)

*Female* :—(See beyond on p. 65).

Described at first from two male specimens mounted in balsam and captured November 27 and 29, 1911 from the foliage of bastard gum in a forest, Nelson, Queensland. (For description of female see beyond on p. 65.)

*Habitat* : Australia—Queensland (Nelson, Cairns District).

*Types* : No. Hy/783, Queensland Museum, Brisbane, 4 ♂'s, 1 ♀ in xylol-balsam (1 slide, 30 November, 1911) ; also 1 ♂, 27 November, 1911 (a total of two slides ; the first also bearing some eulophids ; the second the type female of *Stethynium vesalii* Girault and a pair of *S. lavoisieri* Girault, both as yet undescribed).\*

#### 4. OLIGOSITA PULCHRA new species.

*Female* :—Length, 0.50 mm. ; moderately small in size for the genus.

General color sooty black marked conspicuously with intense lemon-yellow as follows : Most of the head except a sharply delimited area ventrad of the ends of the eyes and including the mouth ; a conspicuous yellow band about the base of the abdomen and the mesoscutellum. Legs and antennæ greyish dusky, the trochanters, ends of femora and tibiæ pallid dusky. Wings colored almost as in *subfasciatipennis*. Venation greyish dusky.

Fore wings moderate in width, not narrow, their greatest width distinctly greater than the length of their longest marginal cilia which are only about three fourths the length of an imaginary line drawn through the widest part (about midway between the wing apex and the apex of the marginal vein). Discal ciliation sparse and short but visible, about seven longitudinal

\* Described in Part II., following.

lines some of which are straight and regular ; beneath the venation absent excepting a line of three very minute cilia, centrally placed. Stigmal vein with no neck. Caudal wings with the paired line of the discal cilia cephalad ; normal, their caudal and longest marginal cilia about a fourth shorter than the longest marginal cilia of the fore wing. Apex of venation of caudal wing bearing four hooklets.

Mandibles tridentate ; body normal for the genus, the ovipositor not exerted ; tarsal joints moderate in length. Antennæ normal ; pedicel much longer than the single funicle joint, which is wider than long, subhemispherical in shape ; proximal joint of club larger than the funicle joint, wider than long, the second joint longer and wider, the third and distal joint conical, terminating in a stout spinelike seta which is rather conspicuous, together with a shorter, less stout and inconspicuous one.

(From one specimen, same magnification.)

*Male* :—Unknown.

Described from one female mounted in balsam and captured November 22, 1911 from a window in a kitchen of working men's quarters on a sugar plantation near Nelson, Queensland.

*Habitat* : Australia—Queensland (Nelson, Cairns District).

*Type* : No. Hy/784, Queensland Museum, Brisbane, the above specimen in xylol-balsam.

This species is distinguished by its characteristic coloration but otherwise it is similar to *subfasciatipennis* Girault. On May 25 and 26, 1912 I obtained single females of this species at Nelson from spider webbing against a window pane in a private residence. They were dead. Also, in the same place, another female, June 24, 1912.

*Oligosita minima* was found to be quite common at Nelson. Since describing it I have captured the following specimens by carefully searching the foliage of bastard gum in forests adjoining town. These specimens occurred with a number of other chalcids, all yellow and similar in general appearance but varying in size. Thus several eulophids were largest, then followed species of *Stethynium* and then the smallest, *S. cuvieri*\* and this *Oligosita* : 1 ♂, 2 ♀'s ; 1 ♂, 1 ♀ and 4 ♂'s, 1 ♀, 30 November, 1911. The female is similar to the male but the abdomen is more pointed. Both sexes have a median sulcus on the mesoscutum and mesoscutellum. Another male has since been captured from a window in an empty house near Nelson December 10, 1911.

These yellow chalcids are associated with yellow species of Thysanoptera and froghoppers, all presenting the same general appearance but easily distinguished by the trained eye because of their distinct habiti. This color appears to have some significance since it is so nearly similar to the whole insect association just noted and to the yellowish-green color of the foliage.

\* Described in Part II., following.

5. *OLIGOSITA AUREA* new species.

*Female*:—Length, 0.62 mm. ; moderate in size for the genus.

General color bright greenish yellow, the abdomen faintly striped with black, the tip somewhat darker, the posterior coxæ and a space above it and a broad stripe across the intermediate coxæ dusky black ; distal tarsal joint dusky. Remaining portions of all legs and the antennæ concolorous with the body. Fore wings hyaline but with a substigmal spot as in *americana* ; caudal wings faintly clouded throughout. The substigmal spot points straight caudad but with a slight inclination proximad. Face ventrad of eyes blackish.

This species differs from all the Australian species noted above, with the exception of *americana*, by its dense discal ciliation of the fore wing. It is quite closely allied with *americana* from which it differs as follows : Its general coloration is different, the black on the coxæ and the bright greenish yellow of its body ; its fore wings are not slightly fumated throughout but clear and also they are narrower, their discal ciliation somewhat coarser but about the same number of longitudinal lines (about ten) ; also the proximal tarsal joints are much shorter, those of the fore legs only about half the length of the corresponding joint in *americana*, for instance, only about twice longer than wide, whereas in *americana* the proximal tarsal joint of the cephalic legs is at least five and a half times longer than wide, long and slender, in *aurea* short and subequal to the intermediate joint. Ovipositor's valves not exerted.

(From one specimen, the same magnification.)

*Male*:—Unknown.

Described from a single specimen captured at Nelson, N.Q., in the same place as the original specimen of *pulchra* was captured but some weeks later, namely on December 20, 1911.

*Habitat*: Australia—Queensland (Nelson, Cairns District).

*Type*: No. Hy/785, Queensland Museum, Brisbane, the above specimen (mounted on a slide with a *Paratrichogramma* and an *Alaptus*).

6. *OLIGOSITA NOVISANGUINEA* new species.

*Female*:—Length, 0.70 mm. ; moderate in size for the genus.

General color beautiful, bright sanguineous tinged with pink ; this bright color entering also the marginal vein, coxæ and the posterior legs as far as the tarsi. Base of abdomen with a broad white band across it involving over a third of the length of the abdomen ; ocelli red, eyes conspicuous, nearly black ; legs greyish or dusky white, the proximal two joints lighter, white ; the antennæ concolorous with the legs excepting the distal two antennal joints which are black. Fore wings clear but at the substigmal spot which is sooty black and distinct but not pronounced, crossed by an almost invisible suffused band. Submarginal vein yellowish, ovipositor pallid yellowish.



Structurally, agreeing with *sanguinea*; discal ciliation of both wings, however, apparently absent. The proximal joint of the club appears to be longer than is the case with *sanguinea*, subequal in length to the second or intermediate joint.

(From a single specimen, the same magnification.)

*Male* :—Unknown.

Described from a single female specimen mounted in balsam and captured by myself from a window of workmen's quarters on a sugar farm, Nelson, N.Q., January 23, 1911.

*Habitat* : Australia—Nelson, Queensland.

*Type* : No. Hy/786, Queensland Museum, Brisbane, the forenoted female on a slide.

It was indeed surprising to see this species whose structural and colorational similarity to the species *sanguinea* (known so far only from the United States of America) is most marked; the broad perfectly white band across the abdomen must be considered its characteristic. Of the many specimens of *sanguinea* seen by me none have shown a tendency to have the abdomen thus banded. This form may be no more than a geographical variant but I doubt it very much.

While examining some incisions in a weed (made presumably by jassids for eggs) along a roadway near Nelson, early in April, 1912, I extracted what appeared to be a nearly perfect pupa of this species but I am not sure.

#### 7. OLIGOSITA FASCIATIPENNIS new species.

*Female* :—Length, 0.40 mm.; moderately small to small for the genus.

General color bright lemon-yellow, the face, cephalic third of mesoscutum, a moderately broad band across the fore wings at the stigmal vein and a similar band across the abdomen slightly beyond (caudad) its middle, sooty black; venation concolorous; eyes dark red; legs uniformly concolorous to extreme tips; antennæ pallid dusky. Substigmal spot present; the fumated band of the fore wing is not as dark as it and is subcircular in outline, somewhat like a globe hanging from the stigmal vein and flattened along the caudal wing margin; hence the band stops at the base of the stigmal vein and does not proceed to the cephalic wing margin. Not quite half of that portion of the blade of the posterior wing distad of venation is sooty black, the fumation proximad.

Structurally characterised by the shape of the fore wings which are broadly pyriform, the apex broad, the marginal cilia only moderately long, the longest only slightly more than a half of the greatest wing width. The discal ciliation is moderately distinct but not dense, only about nine lines and confined to the broad, distal part of the blade; posterior wings bearing a single line of discal cilia along the cephalic margin, narrow, their caudal marginal cilia somewhat longer than the longest cilia of the fore wing. Funicle joint of antennæ much shorter than the pedicel, wider than long; distal antennal joint terminating in what appears to be a pair of very short but thick setæ, one from each side of the apex. Valves of the ovipositor projecting slightly; proximal tarsal joint of posterior legs longest. Pedicel of antenna subequal in length to distal club joint.

(From a single specimen, the same magnification.)

*Male* :—Unknown.

Described from a single specimen captured by sweeping in an open forest near Nelson, N.Q., February 18, 1912 (A. M. Lea and A. A. Girault). This species resembles some of the yellow species of *Signiphora*.

*Habitat* : Australia—Nelson (Cairns District), Queensland.

*Type* : No. Hy/787, Queensland Museum, Brisbane, one female in xylol-balsam (mounted with a female *Gonatocerus*).

The above species differs from *pulchra*, with which it may be confused, in the differently shaped fore wing and general coloration.

#### 8. OLIGOSITA INSULARIS new species.

*Female* :—Length, 0.45 mm. ; moderate in size for the genus.

General color tawny yellow, all of the thorax brighter, nearly golden yellow, the legs pallid dusky yellow with the distal tarsal joint black ; antennæ greyish but with the club black, the spaces between its joints pallid. Wings hyaline, with the exception of the substigmatal spot which is distinct and covers the knob of the stigmatal vein, projecting thence proximo-caudad and sub-rectangular in shape. Fore wing very slightly infuscated throughout. Venation pallid dusky yellowish. Coxæ darker.

Fore wings moderate in width, slightly wider than their longest marginal cilia or subequal in width to the length of those cilia, the marginal cilia long, the discal ciliation sparse and inconspicuous but visible in a line following the apical margin of the blade and in a shorter line running distad from the knob of the stigmatal vein ; otherwise, practically absent.\* Posterior wings narrow, gradually narrowing distad, the blade slightly curved, apparently without discal ciliation, the caudal marginal cilia very long and conspicuous, nearly as long as the marginal cilia of the fore wing, the cephalic marginal cilia inconspicuous and short. Venation normal for the genus. Ovipositor long but not exerted. The proximal tarsal joints of posterior legs long and slender ; strigils absent.

Antennæ normal ; the obconic pedicel slightly longer than the funicle joint, which is subequal to the intermediate club joint, the other two joints of the club subequal in length, each slightly shorter than the funicle ; ring-joint distinct, single. Club terminating in a thick spinelike seta, which is slightly knobbed at its tip and resembles a minute drumstick.

(From numerous specimens, the same magnification.)

*Male* :—Unknown.

Described from forty-eight female specimens captured March 13 and 14, 1912 from the panes of four windows in a one-story unoccupied dwelling on the outskirts of the town, Thursday Island, Torres Strait, N.Q.

\* But in an occasional specimen one can also see another line of cilia from the apex in the caudal third of the wing, the line extending under the knob of the stigmatal vein but not near it ; in these specimens the ciliation is more distinct.

*Habitat* : Australia—Thursday Island, Torres Strait, Queensland.

*Types* : No. Hy/904, Queensland Museum, Brisbane, 6 ♀'s in xylol-balsam, one slide (March 13, 1912).

Cotypes in the United States National Museum, Washington, D.C., 9 ♀'s, similarly mounted, one slide (March 13, 1912).

**9. OLIGOSITA HILARIS** Perkins.

Perkins, 1910, pp. 658-659, text-fig.

A single female of this species known thus far from Honolulu only, was captured from a window in an unoccupied dwelling in the town of Thursday Island, Torres Strait, March 14, 1912. It was in company with many specimens of *insularis*. The specimen agrees with the original description of the species in general but the thorax has more yellow; the basal yellowish wide ring of the abdomen is pale yellowish, varying in density and occupies nearly the whole basal half of the abdomen; the antennæ and legs are dusky, excepting tibiæ and two proximal tarsal joints and the pedicel and first club joint of antennæ; the whole lateral aspect of the thorax black, more pronounced posteriorly. The antennæ agree well with the figure, but they terminate as usual in a long stout spine which is not shewn in the figure. The fore wings are as described but they are quite normal and moderate in width for the genus. They are practically two-banded—a fuscous shade proximad, under most of the submarginal vein (its proximal two thirds about), somewhat more pronounced at its distal margin in the shape of a rounded blotch of nearly the width of the wing at that place; and a moderately broad band across the wing at the stigmal vein, beyond the middle of the wing and moderately well defined. It is rectangular in shape. The "distinct blotch about the stigmal vein" of the original description does not describe this character, since it is the largest substigmal spot which I have ever seen in any species of the genus; it is conic-triangular in shape, obscures the short stigmal vein and is wholly within the transverse band. The discal ciliation of the fore wing is as in *insularis* nearly; the longest marginal cilia of that wing (disto-caudad) are subequal to its greatest width. Posterior wings moderately broad, curved, their discal ciliation normal, the single line of cilia distinct and near but not at the cephalic margin; its caudal marginal cilia are subequal in length to the longest marginal cilia of the fore wing. The ovipositor is not exerted. Proximal tarsal joint of posterior legs long, not much shorter than the combined lengths of the two distal joints. The strigil and cephalic tibial spur absent. Through a hand lens (Coddington, 1-inch Bausch and Lomb) the species appears to be nearly black, encircled by a contrasting golden band around the base of the abdomen, the wings with two dark stripes, one near base.

Although, from the original description of *hilaris* this specimen differs in that there is a distinct fuscous band across the wings at the stigmal vein, minor color differences and for the genus the wings are not narrow, yet I think I am justified in identifying it with that species. The male is unknown. The species resembles *pulchra* but its wings are narrower and the funicle much larger.

Subsequently another female specimen was found, captured at the same place and at the same time. One specimen has been deposited in the Queensland Museum in Brisbane.

**10. OLIGOSITA SACRA** new species.

*Female* :—Length, 0.70 mm. ; moderately large for the genus.

Immaculate, pale greenish yellow and like *australiensis* but the fore wings have a small substigmatal spot. Eyes and ocelli nearly black. The venation concolorous with the body. Wings hyaline or nearly, the discal ciliation of the fore wings faint but present. The substigmatal spot is small, rectangular but including the portion on the stigmal vein, caret-shaped.

Like *americana* and probably not differing from that species other than in general coloration, though the marginal cilia of the fore wings are somewhat shorter and the proximal joints of the tarsi shorter, much shorter than usual for *americana*. The scutellum is transverse. There are about six lines of discal ciliation. Antennal flagellum and caudal wings missing. Thorax with a median sulcus.

(From one specimen, the same magnification.)

*Male* :—(See beyond.)

Described from one female captured by sweeping grass in an open forest near Nelson, N.Q., April 18, 1912.

*Habitat* : Australia—Queensland (Nelson near Cairns).

*Types* : No. Hy/992, Queensland Museum, Brisbane, the following two female specimens in xylol-balsam, one slide (April 24).

*Cotype* : The above specimen in xylol-balsam.

This species, it is possible, may be *americana* but its place of capture and its coloration make me doubt it very much ; also it bears a median thoracic sulcus. Rather than identify it as that species I have named it. It resembles also *australiensis* but the latter has not a prominent uncus from the stigmal vein, nor discal ciliation of the fore wing, nor a substigmatal spot.

About a week after describing this species while sweeping grass in a forest near Nelson (April 24), I captured two more females. The funicle joint of the antenna is smaller than in *americana*, subequal to or shorter than the proximal joint of the club. On April 30, 1912, one male and four females were captured by sweeping in a similar situation, near Nelson. The male is like the female but the single funicle joint is distinctly longer, not subglobose.

**11. OLIGOSITA ANIMA** new species.

*Female* :—Length, 0.45 mm. ; moderately small for the genus.

The same as *aurea* but smaller and uniformly lemon-yellow in color. Also the proximal tarsal joints are longer, long and slender ; the distal tarsal joint, the eyes and ocelli black. The wings are the same. The funicle joint is long, longer than the proximal club-joint ; otherwise the same as *aurea*.

(From one specimen, the same magnification.)

*Male* :—Not known.

Described from a female captured by sweeping along a forest path, Nelson, N.Q., February 16, 1912 (A. M. Lea and A.A.G.).

*Habitat* : Nelson near Cairns, Queensland.

*Type* : No. *Hy/993*, Queensland Museum, Brisbane, the above female on a slide (mounted with many specimens of *Gonatocerus*).

#### 12. OLIGOSITA FUSCIPENNIS new species.

*Female* :—Length, 0.50 mm. Moderate in size for the genus.

Through a lens resembling a species of *Ablerus* of the Aphelininae because of the very deeply clouded fore wings and the bright red eyes which contrast with the apparently steely blue-black of the body ; also somewhat in habitus.

General color black, the head and thorax dull yellow, the eyes bright crimson, the legs black excepting tips of tibiae and the proximal tarsal joint which are pallid yellowish, the second tarsal joint suffused with blackish ; tip of abdomen, including valves and ovipositor, yellowish ; antennae black, suffused with yellowish unevenly along the flagellum (excluding the pedicel) ; fore wings very pronouncedly, conspicuously fumated from base distad to some distance beyond the apex of the venation, the wider distal part of the blade (less than a distal half, more than a third) slightly stained but that part of the nearly clear area is less stained proximad where it joins the fumation so that there is a more or less distinct clear stripe across the blade just distad of the fumation, slightly beyond the stigmal vein ; the fumation is smoky black, its distal margin irregularly bulged distad, cephalad sloping back to the stigmal vein, whose apex projects slightly beyond into the nearly clear portion of the blade ; the fumation does not cross the stigmal vein, leaving the angle of the blade cut off by that vein clear or nearly. The caudal wings are also fumated for about the same proportionate distance distad.

Abdomen conic-ovate, the valves of the ovipositor projecting slightly or subexserted, the region one and three quarter times longer than the thorax. Mesopostscutellum ending in an acute point ; tibial spurs single, the cephalic ones apparently absent. The three tarsal joints subequal and moderate in length in the caudal legs. Discal ciliation of the fore wing distinct, mostly in the clear area excepting a longer line near caudal margin ; in regular lines (excepting distad), the number of lines being about fifteen of which about nine are isolated and conspicuous ; no oblique line from the stigmal vein ; the marginal ciliation moderate in length, the longest (around the entire apex and disto-caudad and disto-cephalad) not much more than a fourth the greatest wing width and subequal in length to the caudal cilia of the posterior wing. The latter slender, bearing three distinct, subequal lines of discal ciliation, two of which are cephalic.

Venation normal for *Oligosita*.



Antennæ 7-jointed, as in *Oligosita*; funicle joint small in relation to the pedicel and club joints, ovate, not half the length of the pedicel nor half of the size of the proximal club-joint; intermediate club joint largest of the club, the distal club joint conical but not terminating in a spinelike seta as usual for the species of *Oligosita*, the terminal seta small. Pedicel longer than any of the club joints.

(From a single specimen, the same magnification.)

*Male*:—Not known.

Described from a single female captured while sweeping grass in open forest country near a road in the vicinity of Hambleton Junction (Cairns), N.Q. June 7, 1912. The day was cloudy and threatening. This species is very characteristic in coloration and differs somewhat from the usual habitus of its genus. The club does not terminate in a large spinelike seta and there is no substigmal spot. Before seeing its essential structures I thought that it would certainly be of a genus as yet unknown.

*Habitat*: Australia—Hambleton Junction near Cairns, Queensland.

*Type*: No. Hy/1034, Queensland Museum, Brisbane, the foregoing female mounted by itself in xylol-balsam (head separated from the body).

DIAGNOSTIC ARRANGEMENT OF THE AUSTRALIAN SPECIES OF *OLIGOSITA* HALIDAY.

FEMALES.

I. Species blood-red in color.

Sanguineus with a broad white band across the base of the abdomen. Fore wings narrower than their longest marginal cilia and without visible discal ciliation.

Substigmal spot distinct. Funicle joint long .. .. . *novisanguinea* Girault.

II. Species yellow or dusky yellow, or yellow marked with dusky; or black marked with yellow.

1. Substigmal spot of fore wing absent or else obscured.

Fore wings without visible discal ciliation; body uniformly greenish yellow.

Funicle joint short .. .. . *australiensis* Girault.

Fore wings with visible discal cilia distad, arranged in regular lines; body deep black, the head and thorax with yellow; wings deeply fumated, terminal seta of antenna small .. .. .

*fuscipennis* Girault.

2. Substigmal spot of fore wing present, distinct but sometimes small.

(a.) Fore wings with the discal ciliation very sparse, indistinct or invisible (high power).

Uniformly yellow, legs paler; substigmal spot small; discal ciliation of the fore wing apparently absent. Fore wings slightly narrower than their longest marginal cilia. Minute in size .. .. .

*minima* Girault.

(aa.) Fore wings with the discal cilia visible (low power), like pubescence but sometimes only a line or two can be seen.

(b.) Yellow, the abdomen black except at base.

Funicle joint much smaller than the pedicel; wings wider than the length of their marginal cilia.

- Yellow, most of the abdomen and sides of thorax dusky black ; sub-stigmal spot large ; fore wings broader than their longest marginal cilia, rounded at the apex, the discal ciliation present but not easily visible with low power ; legs and antennæ dusky. Fore wings with a more or less obscure fumated band across them at the stigmal vein. Usual in size .. .. . *pulchra* Girault.
- Funicle joint subequal in length to the pedicel ; wings narrower than, or only equal to, their longest marginal cilia.
- Yellow, the abdomen black with a broad yellow band at base ; sides of thorax black ; fore wings with a more or less distinct dusky band across them at the stigmal vein. Substigmal spot large .. .. . *hilaris* Perkins.
- (bb.) Yellow species, the abdomen faintly striped with dusky or yellow suffused with dusky.
- (c.) Discal cilia of fore wing very distinct.
- Tip of abdomen, ventral half of face, stripe on each side of cephalic thorax, one across intermediate coxæ, one above caudal coxæ and the latter dusky black. Wings hyaline, their discal ciliation (fore wing) very distinct, moderately long ; proximal tarsal joint of caudal legs not much longer than the intermediate joint ; funicle joint of antennæ hardly longer than the proximal joint of the club .. .. . *aurea* Girault.
- Uniformly yellow ; proximal tarsal joints long and slender ; funicle joint longer than the proximal club-joint .. .. . *anima* Girault.
- (cc.) Discal cilia of fore wing not very distinct.
- Body uniform in color with the exception of faint indications of black transverse bands across the abdomen ; wings hyaline. Proximal tarsal joint of caudal legs longer, distinctly longer than the intermediate joint, funicle joint usually longer than the proximal club-joint. Fore wings broad .. .. . *americana* Girault.
- Bright lemon-yellow, the face, cephalic third of mesoscutum and a broad band across the abdomen beyond middle, sooty black ; a distinctly sooty band across the fore wings at the stigmal vein ; apex of fore wings nearly flat ; marginal cilia of posterior wing longer than those of the fore wing .. .. . *fasciatipennis* Girault.
- Tawny yellow, the thorax brighter, nearly golden yellow ; legs pallid dusky yellow ; antennæ greyish, the club black ; substigmal spot covering the knob of the stigmal vein ; fore wings slightly infuscated throughout. Discal ciliation of the fore wing very sparse. Proximal tarsal joints long and slender. Pedicel slightly longer than funicle .. .. . *insularis* Girault.
- Immaculate pale greenish yellow and like *australiensis* ; discal ciliation of the fore wing faint ; proximal joint of tarsi short ; funicle subequal to proximal club joint ; thorax with a median sulcus .. .. . *sacra* Girault.

## BRACHYGRAMMA new genus.

*Female* :—Head normal, the three ocelli in a triangle in the centre of the vertex, the latter elevated centrally, the eyes large, lateral, naked, the antennæ inserted much below the middle of the face, distinctly ventrad of an imaginary line drawn between the ventral ends of the eyes, 7-jointed—scape, pedicel, one ring-joint, two funicle joints and a two-jointed club. Scape rather long, cylindrical, narrower at each end ; pedicel usual, obconic, longer than the whole funicle

but not very much more so, the funicle subtriangular, both of its joints wider than long, the first longer than the second; club broadly ovate, shaped somewhat as in *Tumidiclava* Girault but less regular and not so large, its distal joint longest, acute, but not terminating in a spinelike seta. Fore wings shaped very much as in *Pterygogramma* Perkins and with its ciliation about as in that genus but the venation is different; thus the marginal vein is broad and very short, just about twice longer than wide, the stigmal vein sessile, nearly absent, but represented by a short neckless projection from the marginal vein, subquadrate in shape and bearing an acute uncus from its disto-cephalic angle. Submarginal vein long, clavate and curved, more than thrice the length of the marginal vein. Ciliation short excepting along the caudal margin of the posterior wing where it is moderately short, but yet twice the length of the longest marginal cilia of the fore wing; it is not as long, however, as the greatest width of the caudal wings, which are very broad and shaped like the blade of a knife, bearing but three lines of discal ciliation; their cephalic marginal cilia are very short. No oblique line of discal ciliation running back from the stigmal vein.

Abdomen somewhat longer than the head and thorax combined, sessile, conical and not pointed, the ovipositor short and not exerted, inserted at distal third; parapsidal furrows sharply defined; pronotum, mesoscutum and the scutellum, the metanotum and phragma, with a sharply defined median sulcus. Mesophragma well developed. Tarsal joints moderately long, much shorter in the cephalic legs; tibial spurs single, short, absent from the cephalic legs. Legs normal to the family. Body long.

*Male*:—Unknown.

A unique genus bearing antennæ shaped like those of *Paratrichogramma* and wings like those of *Pterygogramma* but the antennal segmentation and wing venation resemble those of no genus now known; the median sulcus of the thorax is exceptional, occurring in no other genus of the family excepting a few species of *Oligosita* and in *Ittys* and *Neocentrobia*.\*

*Type*: The following species.

1. **BRACHYGRAMMA BICLAVATUM** new species.

*Female*:—Length, 0.90 mm.; moderately large for the family.

General color dull honey-yellow, blotched with dusky black; antennæ, cephalic margin of the head, pronotum, cephalic two thirds of mesoscutum excepting the lateral margins, cephalic half of the scutellum at the meson, mesophragma, postscutellum and metathorax and the cephalic halves of the abdominal segments (transverse stripes), femora, coxæ, tibiæ and distal tarsal joints dusky black; eyes and ocelli carmine. Venation dusky yellowish. Wings hyaline.

Fore wings bearing about fifteen lines of discal ciliation which is short but distinct; inner margin of submarginal vein crenulate. Proximal joint of antennal club wider than long, not much over half the length of the distal joint; proximal funicle joint nearly twice the length of the distal joint of that region which, as in *Paratrichogramma*, bears a short stalk, pedestal or petiole supporting the club. Scutellum not half the length of the scutum, wider than long; caudal margins of mesoscutum inclined cephalo-mesad, meeting at the meson.

\* Described in following.

(From a single specimen, the same magnification.)

*Male* :—Unknown.

Described from a single female specimen mounted in balsam and captured from the pane of a window in workmen's quarters on a sugar farm near Nelson, N.Q., late in the afternoon of January 24, 1912. (A. A. Girault.)

*Habitat* : Australia—Queensland (Nelson, Cairns District).

*Type* : In the Queensland Museum, Brisbane, the above specimen, No. Hy/788.

The median sulcus in this genus, rather unique for the family, is present in many genera of the Eulophidæ.

#### PSEUDOGRAMMA new genus.

*Female* :—Head normal, the eyes moderate in size, the three ocelli arranged in a line across the vertex, the lateral ones near to the eye margins, the antennæ inserted well down on the face near the clypeal margin, somewhat below the ventral ends of the eyes, the scrobes well developed, forming a distinct inverted V-shaped groove; the mandibles tridentate. Antennæ 6-jointed, as in *Trichogramma* Westwood—scape, pedicel, 1-ring joint, 2-jointed funicle and solid club; the latter and the scape subequal in length, the pedicel obconic, moderately large, as long as the funicle whose joints are subquadrate but slightly longer than wide and subequal. Fore wings nearly as in *Trichogrammatoidea* Girault as concerns shape and ciliation and coloration but the venation is different, the marginal vein straight, short, only about a third the length of the long submarginal vein, the stigmal vein short, straight, somewhat less than half the length of the marginal vein and with only a very short neck; discal ciliation quite inconspicuous, short, sparse; marginal cilia moderate, as in *Trichogrammatoidea*, between a fourth and a fifth the greatest wing width; fore wings fumated; stigmal vein pointing nearly disto-caudad, appearing like a mere bulb attached to the end of the marginal vein; no oblique line of discal cilia leading back from the stigmal vein; about 7 lines of discal cilia.

Parapsidal furrows complete; abdomen as in *Trichogramma* Westwood, cylindrical ovate, sessile, the tip of the valves of the ovipositor reaching to tip and pointing it; abdomen somewhat longer than the head and thorax combined. The three tarsal joints moderate in length, the proximal joint longest, especially in the intermediate legs.

*Male* :—Unknown.

A genus so closely resembling *Trichogrammatoidea* Girault in general appearance that its type species was at once placed as a member of that segregate. However, though casually appearing curved, scrutiny of the marginal vein shows that it is truly straight and this fact combined with the short and straight stigmal vein justifies placing the species in this distinct segregate which becomes a component of a subfamily not containing *Trichogrammatoidea*, namely the Chætostrichinæ. In this subfamily, in my table of genera, *Pseudogramma* drops in next to *Chætostricha* Haliday from which it differs markedly in antennal structure.

*Type* :—The following species.

1. **PSEUDOGRAMMA FASCIATIPENNE** new species.

*Female* :—Length, 0·35 mm. ; small for the family.

General color tawny yellow, the abdomen black, the face, antennæ and legs dusky black, the vertex and proximal two tarsal joints yellow ; eyes and ocelli bright red ; fore wings hyaline but crossed by a conspicuous broad, smoky black band extending from the apex of the stigmal vein to the base of the distal third of the submarginal vein, its distal margin nearly straight. About seven longitudinal lines of discal ciliation in the fore wing.

(From a single specimen, the same magnification.)

*Male* :—Unknown.

Described from a single female captured from the windows of an empty dwelling at Herberton, N.Q., December 28, 1912.

*Habitat* : Queensland (Herberton).

*Type* : No. Hy/789, Queensland Museum, Brisbane, the above female mounted on a slide (with the female type of *Signiphora funeralis* Girault and specimens of *Abbella* and *Anagrus*). The head of the type specimen is missing.

## NEOBRACHISTELLA new genus.

*Female* :—The same as female *Neobrachista* but more robust, the ovipositor not so long, not inserted near base of abdominal venter but rather just proximad of the middle of the venter, not just running to tip of abdomen and pointing it but distinctly exerted as in *Centrobiella*, the exerted portion covered by the valves and curved upward somewhat and equal to about a sixth of the length of the long abdomen. Antennæ also somewhat like those of *Neobrachista* but they are 9-jointed—scape, pedicel, 3 ring-joints, one funicle joint and a 3-jointed club, the funicle joint subpedunculate distad, wider than long and shorter than the pedicel ; antennal club longer than the rest of the flagellum, cylindrical ovate, its distal joint smallest and not terminating in a spine-like seta. Fore wings as in *Neobrachista* but the marginal vein is longer than the stigmal (shorter in the genus named) and there is no oblique line of discal ciliation leading back from the stigmal vein or else it is obscured ; the discal ciliation is normal and rather dense but there are two long lines which are regular and contrast with the rest of the ciliation ; the marginal cilia are short. The thorax bears a median sulcus to apex of mesophragma. Otherwise, about as in *Neobrachista*.

*Male* :—Not known.

The antennæ of this genus are very similar to those of *Neobrachista*.

*Type* : The species described forthwith.



1. *NEOBRACHISTELLA MAXIMA* new species.

*Female* :—Length, about 1.00 mm. ; large for the family.

Sooty black, the caudal half of the mesoscutum suffused with lemon-yellow ; tips of tibiæ, proximal two tarsal joints and the ovipositor (but not its valves) suffused more or less with yellowish as is also the scape, vertex and venation. Fore wings lightly clouded, the cloudiness more or less accented across the wing at the prominent, acute, caudal projection of the submarginal vein, under the marginal vein and across from the tip of the stigmal ; also, around wing apex.

Discal ciliation short, about twenty-two lines ; stigmal vein given off from the lower angle of the marginal, eggshaped and borne upon a distinct, slender though short, petiole. Discal ciliation projecting well under the venation.

(From a single specimen, the usual magnification.)

Described from a single female specimen captured June 17, 1912 from a window in men's quarters on a sugar farm at Nelson, N.Q.

*Habitat* : Australia—Nelson near Cairns, Queensland.

*Type* : No. *Hy/1075*, Queensland Museum, Brisbane, the forenoted specimen on a slide.

## CENTROBIELLA new genus.

*Female* :—Head normal, the antennæ inserted below the middle of the face, 7-jointed—scape, pedicel, one ring, one funicle joint and a three-jointed club ; the funicle joint is smallest, cup-shaped, longer than wide, slightly smaller than the next joint. Fore wings as in *Pterygogramma* Perkins, the discal ciliation in regular lines, the oblique line leading back from the stigmal vein long, complete. Posterior wings normal but in balsam mounts sometimes very narrow and slender, acuminate acute. Parapsidal furrows complete. Abdomen longer than the head and thorax combined. The valves of the ovipositor conspicuously exerted for a length about a third that of the abdomen, curved, acute at apex. Otherwise as in *Pterygogramma*.

*Male* :—The same but the abdomen more rounded.

A genus resembling both *Pterygogramma* Perkins and *Lathromerella* Girault\* differing from both in regard to the structure of the antennal club, the shape of the abdomen, presence of the antennal funicle and characteristics of wing ciliation. It may become confused with *Centrobia* Foerster and *Prestwichia* Lubbock but the ring-joint and abdominal characters should easily serve as a means of distinguishing them ; *Centrobia* has no ring-joint while *Prestwichia* has a long tubular abdomen. The genus is closely allied with *Centrobia*.

*Type* : The following species (*mulierum*).

\* Described in following.

1. **CENTROBIELLA MULIERUM** new species.

*Female* :—Length, about 0.50 mm. ; moderate for the family.

Orange-yellow with much black ; thorax conspicuously orange-yellow ; the abdomen less so but marked distinctly with transverse black stripes ; most of the sides of the thorax dark ; legs and antennæ yellow but the former marked with black along most of each femur and the distal tarsal joint ; exerted ovipositor valves black ; venation yellow, suffused with dusky. Wings hyaline, but the fore wing distinctly, rather lightly fumated out to the end of the stigmal vein, the distal margin of the fumated area somewhat convex. Eyes bright red.

Fore wings with about seventeen lines of discal cilia, the oblique line from stigmal vein complete with about nine to ten cilia ; proximad near its caudal third is an isolated patch of cilia at the caudal wing margin and opposite the venation. Marginal cilia of fore wing moderately short, the longest distinctly not three fourths the length of the longest cilia of the posterior wing which bears but two complete lines of discal ciliation, in the cephalic half. The caudal marginal cilia of the posterior wings are about a third as long as the greatest width of the fore wing. Third joint of antennal club longest, the club not terminating in a spinelike seta.

(From one specimen, the same magnification.)

*Male* :—The same but the abdomen is not striped, the legs darker, the marginal cilia of the fore wings decidedly longer, nearly as long as the caudal marginal cilia of the posterior wing.

(From one specimen, the same magnification.)

Described from a single pair captured by sweeping grass in an open forest near Nelson, N.Q., April, 18, 1912. Dedicated with respect to women, more especially those who assert their mental equality to men, who are progressive and therefore do not have a tendency to keep back the development of the race through heredity.

*Habitat* : Australia—Queensland (Nelson near Cairns).

*Types* : No. *Hy/996*, Queensland Museum, Brisbane, the foregoing pair mounted in xylol-balsam (two slides ; the female mounted with a female of *Gonatocerus*).

Subsequently, a second female was captured from a window in men's quarters on a sugar farm at Nelson, May 20, 1912 and two more from a window in a private residence at Nelson, June 16 and 18, 1912 ; also a male was obtained by sweeping in a forest near Nelson, July 3, 1912 and a female July, 4 1912 from a window in a residence.

## NEOCENTROBIA new genus.

*Female* :—Head normal, the three ocelli in a triangle in the centre of the vertex, the antennæ inserted slightly ventrad of an imaginary line drawn between the ventral ends of the eyes, 7-jointed, short and clavate, the club enlarged as in *Tumidiclava* Girault—scape, pedicel one minute ring-joint, one subtriangular funicle joint and a swollen 3-jointed club, which does not terminate in a spinelike seta ; funicle narrower than the club or pedicel, the latter stout as in *Tumidiclava*, the scape short. Mesoscutum and scutellum with a median grooved line. Fore wings nearly as

in *Tumidiclava* but the marginal cilia are somewhat longer, moderate in length, the longest between a third and a half of the greatest wing width ; the discal ciliation irregular, abundant but not dense and it is short, crowding back under the venation ; no oblique line of it from the stigmal vein ; the venation is different, the marginal vein short, only about four times longer than wide and slightly over a third the length of the submarginal vein, the stigmal vein with a distinct but not long neck, about half the length of the marginal vein, the latter straight. Abdomen conic-ovate, about equal to the combined lengths of the head and thorax, the ovipositor long, inserted at its base, its valves exerted together with itself, distinctly, for a length equal to a fifth of the length of the sessile abdomen. Legs normal, the intermediate and posterior femora somewhat swollen, the tarsal joints short, the proximal joint of the cephalic tarsi shortest ; *the cephalic tibial spur is present* but very short, not forming a strigil, the others single and longer. Posterior wings usual, rather narrow, with long marginal cilia caudad and apparently without discal ciliation. Mandibles with at least two teeth.

*Male* :—Not known.

This unique genus casually resembles *Tumidiclava* Girault but in my table of genera will run near *Centrobia* Foerster, since the funicle is present and the ovipositor exerted. It is also like *Ophioneurus* Ratzeburg, especially since the club wrinkles transversely in balsam when the specimen is heated, appearing 6 or 7 jointed and also because of the venation. *Ophioneurus*, however, has no funicle. The genus has the body of *Lathromeris*.

*Type* : The following species.

#### 1. NEOCENTROBIA CARA new species.

*Female* :—Length, 0.50 mm. ; moderate in size.

Dusky yellow, the abdomen dusky black ; legs pallid yellowish excepting the proximal two thirds of the femora which are dusky black ; club and funicle of antenna dusky black, the scape and pedicel yellowish. Fore wings lightly fumated throughout, the fumation somewhat accented at the stigmal knob ; venation dusky yellowish. Distal tarsal joint not darker. Tibiæ with an obscure dusky band around it just out from base.

Fore wings bearing about from twelve to fourteen lines of discal cilia across its widest blade portion which are inclined to be massed in the middle of the blade, longitudinally, there being from the end of the venation distad to the apex, a more or less naked marginal strip between the first one or two lines along each margin and the remaining and central portions of the ciliation. The posterior wings *apparently* bear a single, inconspicuous line of discal cilia along its cephalic margin. Proximal tarsal joints of cephalic legs shortest, also the same joints of the other legs are shorter than the third or distal joint.

(From a single specimen, the same magnification.)

*Male* :—Not known.

Described from a single female specimen captured with specimens of *Tumidiclava ciliata* Girault by sweeping in grassy fields near Cooktown, N.Q., February 24, 1912.

*Habitat* : Australia—Queensland (Cooktown).

*Type* : No. Hy/994, Queensland Museum, Brisbane, the forementioned specimen in xylol-balsam (mounted with four females of the *Tumidiclava*).

#### TRIBE LATHROMERINI Girault.

##### LATHROMERELLA new genus.

*Female* :—Head normal, the eyes prominent, the lateral ocelli distant from the eye margins, the antennæ inserted below the middle of the face, 9-jointed—scape, pedicel, 2 ring-joints and a five-jointed club, the distal club joint ending in a straight spinelike seta ; pedicel distinctly longer than any of the club-joints, ovate ; ring-joints distinct, the first twice the size of the second, which is rather inconspicuous and appears to be the rimmed proximal end of the first club-joint ; funicle absent. Body long and slender, pointed, the abdomen conic-ovate, longer than the head and thorax combined, the ovipositor long but not exerted at all, nor are its valves, the latter merely tipping the apex of the abdomen. Parapsidal furrows complete ; mesoscutum much longer than the mesoscutellum, the latter subhemispherical. Legs normal, the three tarsal joints moderately long and subequal, the tibial spurs single, comparatively stout, about half as long as the proximal tarsal joint, present on the cephalic legs, the strigil absent. Mesophragma present. Abdomen sessile. Antennæ normal in shape, not dilated, the club cylindrical.

Fore wings somewhat as in *Pterygogramma* Perkins, the venation and ciliation much the same ; venation straight, the marginal vein long but distinctly shorter than the submarginal, the post-marginal absent, the stigmal vein distinct, short but with a distinct neck. Marginal ciliation like that of *Pterygogramma acuminatum*, the discal ciliation somewhat denser and more distinct than in that species, arranged in regular lines of which there are about fifteen. No oblique line of discal ciliation leading back from the stigmal vein. Fore wing fumated throughout but not uniformly. Caudal wings with the blade rather short, narrowing regularly distad and obtusely pointed at apex, bearing a paired line of discal ciliation near the cephalic margin, broadest across apex of the venation, its caudal marginal cilia longer than the longest marginal cilia of the fore wing.

*Male* :—Unknown.

A genus resembling in habitus *Prestwichia* Lubbock somewhat but more closely *Lathromeris* Foerster and *Pterygogramma* Perkins from both of which it may be distinguished by means of the distinctly 5-segmented antennal club and the presence of two ring-joints. *Trichogrammatella* Girault which also has a 5-jointed antennal club is different from this genus because of its curved venation, unusually long tibial spur of the intermediate legs and in bearing but a single ring-joint in the antennæ.

*Type* : The following species.

1. *LATHROMERELLA FASCIATA* new species.

*Female* :—Length, 0.85 mm.; moderately large for the family.

General color orange-yellow. Abdomen with three conspicuous black stripes across it, the first and broadest (or longest) across the middle, the second midway between it and the third and the latter near apex but not at it. The caudal two of these stripes are about equally wide, each half the width (cephalo-caudad) of the first stripe; tip of abdomen black also, a short yellow space between it and the third abdominal stripe. A small oval or elliptical dusky spot at base of abdomen, in the dorso-lateral aspect; club and proximal half of pedicel dusky; several dusky areas on the mesopleurum; mesoscutum dusky excepting along the median line and the caudal and lateral margins. Marginal vein concolorous with body, but stigmal and submarginal veins dusky black, the former darker and conspicuous. Legs concolorous excepting the black distal tarsal joints and the posterior coxæ and the dusky proximal halves of the femora. Lateral margin of parapsides dusky. Fore wing lightly but distinctly, not uniformly fumated or stained throughout, the staining deeper across the wing under the stigmal vein, clearer under the marginal vein. Caudal wings hyaline. Eyes and ocelli bright red.

Antennal club with the third joint longest and widest, the first shortest and cup-shaped, the distal joint conical. Discal ciliation in the fore wing absent under the venation with the exception of a short proximal extension of several lines near the caudal margin. Mesonotum bearing about six isolated setæ.

(From one specimen,  $\frac{2}{3}$ -inch objective, 1-inch optic, Bausch and Lomb.)

*Male* :—Unknown.

Described from a single specimen captured by myself December 16, 1911 from the pane of a window in the kitchen of men's quarters on a sugar farm near Nelson, N.Q. A strikingly marked species, which should be easily recognised. Subsequently, another female was taken in the same vicinity by sweeping in an open forest, February 18, 1912 (A. M. Lea and A.A.G.). The abdominal stripes were less conspicuous, the black on the coxæ and femora was much more distinct, especially on the cephalic legs, while the sides of the thorax were more marked with sooty. Variation therefore is marked.

*Habitat* : Queensland (Nelson, Cairns District).

*Type* : No. *Hy*/793, Queensland Museum, Brisbane, one female in xylol-balsam (Dec. 16, 1911).

In the second female captured, the abdomen was conic-ovate but not so slender as in the first.

## LATHROMEROIDEA new genus.

1. *LATHROMEROIDEA NIGRA* new species.

*Female* :—Length, 0.45 mm.; moderately small for the genus.

General color uniformly black, only the tips of the tibiæ being lighter. Wings hyaline with the exception of nearly all of the posterior wings, which are lightly embrowned and the proximal



part of the fore wing out to the end of the venation and slightly beyond, this portion of the wing being smoky brown, the fumation emphasised under the stigmal vein and diluted under the marginal vein and discally.

With all the essential characters of the genus *Lathromerella*—antennal structure and venation—but the abdomen, though conic-ovate and with the valves of the ovipositor exerted slightly, is not long and slender; with a slightly different habitus from that of the type species of the genus named: Thus the body is much shorter, the fore and posterior wings narrower, their ciliation longer; the oblique line of cilia leading back from the stigmal vein is present. Moreover, the venation resembles more that of *Pterygogramma* in aspect and the antennal club does not terminate in a long seta and most of its joints are wider than long and transverse.

Fore wings moderate in width, regularly rounded at apex, their marginal ciliation moderate in length, twice the length of those cilia in *Lathromerella fasciata*, rather uniform, about a fourth the greatest wing width; the discal cilia arranged in regular radiating lines of which there are about sixteen, the cilia distinct and not very short, the discal ciliation absent under the marginal vein excepting a straight row of about five projected proximad from the caudal margin and near that margin. The oblique line of discal cilia leading back from the apex of the stigmal knob is curved and includes about seven cilia; it is complete in the sense that it joins a reciprocal line of the main ciliation which is projected proximad to meet it. Marginal and submarginal veins subequal, the stigmal vein a mere ovate knob separated from the end of the marginal vein by a constriction. Posterior wings slender and obtusely acuminate and wide across the apex of the venation as in *fasciata*, bearing a distinct, paired line of discal ciliation along the cephalic margin and a single line along the caudal margin (a total of three lines), the caudal marginal cilia nearly as long as the marginal cilia of the fore wing.

Abdomen somewhat longer than the head and thorax combined, yet short and conic-triangular; parapsidal furrows complete; the three tarsal joints moderate in length and subequal but in the cephalic tarsi shorter, lengthening distad, the proximal joint shortest. Tarsal claws well developed. Mandibles apparently tridentate, the two outer teeth distinct, acute.

Antennæ 9-jointed—scape, pedicel, two ring-joints (the certainty of there being two ring-joints has not been established, the single mount showed what appeared to be two), and a 5-jointed club; the latter widest between the second and third joints, the two distal joints longest of the club but only the distal joint, which is conical, is longer than wide.

(From a single specimen, the same magnification.)

*Male*:—Unknown.

Described from a single female specimen mounted in balsam and captured from a window in an empty dwelling at Herberton, N.Q., December 28, 1911.

*Habitat*: Australia—Queensland (Herberton and Nelson).

*Type*: No. Hy/794. One female in xylol-balsam (mounted with the female type of *Litus schleideni*). Queensland Museum, Brisbane.

On January 22, 1912, I captured another female specimen of this species at Nelson, N.Q., on a window in the School of Arts. This specimen had the fore wing somewhat narrower and its marginal cilia longer in proportion to its greatest width. I could not verify the antennal structure because those organs shrivelled up as soon as the specimen was mounted in balsam.

**2. LATHROMEROIDEA NIGRELLA** new species.

*Female* :—Length, 0.43 mm. ; moderately small for the family.

Resembling closely *nigra* but differing as follows ; The fore wings are distinctly broader and bear relatively shorter marginal fringes ; also their margins are brown, not so in *nigra*, the margins being clear like the general wing surface. The eyes are hairy and the body bears more stiff bristles than does that of *nigra* which is nearly naked.

(From a single specimen, the same magnification.)

*Male* :—Unknown.

Described from a single female specimen taken from the window of an untenanted dwelling at Cooktown, N.Q., January 31, 1912.

*Habitat* : Australia—Queensland (Cooktown).

*Type* : No. Hy/795, Queensland Museum, Brisbane, the forenoted specimen in xylol-balsam (mounted with a male *Polynema*).

Both of the above species differ from *Lathromeris* in bearing a somewhat longer marginal vein, an oblique line of discal ciliation, a short, acute abdomen and five antennal club joints ; also the wing ciliation is in regular lines.

The type of the genus is *nigra*.

GENUS TUMIDICLAVA Girault.

**1. TUMIDICLAVA CILIATA** new species.

*Female* :—Length, 0.60 mm. ; moderately small for the genus.

Similar to the type species, *pulchrinotum* Girault, but differing in that the yellow median line of the mesoscutum is not perceptible and the scutum caudad is merely edged with yellow ; the tibiæ are yellow ; also the marginal fringes of the fore wing are longer, the longest distinctly nearly a third of the greatest wing width. Fore wings distinctly, but not pronouncedly, fumated out to the end of the venation. Distal tarsal joints black.

Fore wings with about thirteen (more or less) longitudinal regular lines of discal ciliation ; scutellum of mesothorax with its caudal margins oblique and straight, terminating in a regular apex of a triangle at the meson. Mandibles tridentate.

(From a single specimen, the same magnification.)

*Male* :—The same but the abdomen is cylindrical oval, blunt at apex ; antennæ the same. The first male of the genus captured.

(From one specimen, similarly magnified.)

Described at first from a single female specimen captured from a window January 11, 1912 at Innisfail, N.Q. (formerly Geraldton). On January 22, 1912 another female was taken from the window of workmen's quarters on a sugar farm near Nelson, and on the 2nd of February (1912) two more females at Cooktown, N.Q., by sweeping a peculiar grass in a field.

*Habitat* : Australia—Queensland (Innisfail, Nelson and Cooktown).

*Type* : No. Hy/796, Queensland Museum, Brisbane, the first female.

*Cotypes*—In the United States National Museum, Washington, D.C., U.S.A.

This species has nearly the same general color pattern as the single American species of the genus and differs markedly, so far as known, only in bearing longer marginal fringes on the fore wing. Its three club joints and two ring-joints are plainly discernible in the second specimen captured. The stigmal vein is nearly all unicus, the main portion of it merely a bulge from the lower end of the apex of the marginal vein and as described for the type species. Practically, it is absent.

After the above was written I captured another female February 10, 1912 which was crawling over a portion of this manuscript as I sat writing at a table in a hotel at Nelson.

There is some variation in the details of the fore wings. Thus, they are sometimes distinctly broader (as in the Cooktown—and one Nelson—specimen), this broader wing bearing shorter marginal fringes, the latter much less than a fifth of the greatest wing width; but a graduate form is represented by the specimen captured at Nelson on January 22.

Upon my second visit to Cooktown, on February 24 and 27 (1912), one male and twelve females were captured by sweeping in the same place as formerly.

The discal ciliation of the fore wing in this species is undoubtedly in straight lines.

#### HAECKELIANIA new genus.

*Female* :—A genus similar in all respects to *Ufens* Girault but bearing no funicle in the antennæ, the club large, fusiform-acuminate, that is broad at base and tapering to a point at apex, 5-jointed, the proximal joints short and transverse, the apical two joints long and narrow, much longer than wide but not greatly lengthened; the last joint longest and narrowest, a third longer than the preceding joint; also the club bears rather long, thick, spinelike setæ somewhat like the single thickened seta from the apex of the club in *Oligosita* but here much longer and acuminate. Scape and pedicel normal. Mandibles with at least three teeth. Marginal and stigmal veins short, the latter slightly shorter than the former. Cephalic tibial spur present, minute, straight and acute. Posterior wings with their caudal marginal cilia longer than the width of the blade. Ovipositor not long, inserted nearer middle than to base, nonexserted. Otherwise as in *Ufens*.

*Male* :—Not known.

This genus, because of the absence of the funicle, falls in near *Lathromeris* Foerster, from which it is easily distinguished. There is apparently a single ring-joint. The peculiarly shaped club is characteristic but I hesitated for some time before separating it as a distinct segregate from *Ufens* with which I had arranged its type species. The genus is dedicated with great respect to Ernst Haeckel, the most profound philosopher of our times and the one who has, in my opinion, most nearly discovered the truth, the one essential of all philosophy.

*Type*: The following species (*haeckeli*).

1. **HAECKELIANIA HAECKELI** new species.

*Female*:—Length, 0.80 mm.; large for the family, but not as robust as *Ufens hercules*. General color deep black, only the knees, tips of tibiae and all of the tarsal joints being pallid yellow, the body unmarked with yellow or brown. Mandibles fulvous, fuscous at tips. Proximal half (approximately) of fore wing lightly stained a smoke color, the fumation extending out about the length of the stigmal vein distad of the end of the marginal vein.

A species at once characterised by the uniform blackness of its body and the peculiar shape of the antennae and its conspicuous clothing. Thus, the funicle and club of this organ are not differentiated but apparently form one piece which is acuminate-conical or broad proximad and tapering out to a point distad; the pubescence is scattered each hair enlarged into a seta and long like those on the male antennae of *Trichogramma*; but here, the setae are stouter; they are much larger than those of any other species of the family with the possible exception of the male of *Trichogrammatoidea*; moreover, the first or proximal joint of the club is transverse, much shorter than either of the two distal joints. From *Ufens piceipes*, this species differs in bearing less dense discal ciliation on the fore wing and longer marginal cilia on the same wings; its stigmal vein is shorter; the other differences are obvious. From *Ufens niger*, in nearly the same points but the stigmal veins of these two (*niger* and *haeckeli*) are more similar. Also this last statement is true for *Ufens flavipes*; but the discal ciliation in *flavipes* is more like that of *haeckeli* whereas the latter has longer marginal cilia on the fore wing and along the caudal margin of the posterior wings. This species has a shorter stigmal vein, narrower wings, longer caudal marginal cilia on the posterior wings and less hispid posterior tibiae than the species *hercules*; besides it has no yellow at the base of the abdomen. The fore wings bear about eighteen lines of discal cilia, the oblique line of discal cilia leading from the stigmal vein includes only about seven cilia; the caudal marginal cilia of the moderate-sized posterior wings are distinctly longer than the greatest width of the blade. Mandibles tridentate. Marginal vein of fore wing but slightly longer than the stigmal vein. The distal club joint of the antenna apparently divides at apex into two of the large setae which diverge. Strigils absent. Ovipositor not exerted.

(From one specimen, the same magnification.)

*Male*:—Unknown.

Described from a single female specimen remounted in balsam from alcohol and captured from a window at Herberton, N.Q., December 28, 1911. (A.A.G.) Dedicated to Ernst Haeckel.

*Habitat* : Australia—Herberton, Queensland.

*Type* : No. Hy/780, Queensland Museum, Brisbane, the forenoted female on a slide (mounted with *Stethynium* and *Litus*).

GENUS PTERYGOGRAMMA Perkins,

1. PTERYGOGRAMMA DUBIUM new species.

In spite of the enormous differences pointed out herewith between the following species captured at Nelson, N.Q., December 5, 1911 from the panes of a window in men's quarters on a sugar farm, and the original description of the genus, I am quite satisfied that the identification is correct. Perkins' description of the genus must have been founded upon greatly distorted specimens. It must be inaccurate (see beyond).

*Female* :—Length, 0.70 mm. ; moderately large for the family.

General color ashy black, marked with pale cadmium-yellow as follows : Vertex and whole dorsal aspect of the thorax ; the mesoscutum is marked however with the general color of the body—a rather broad but short line (somewhat over twice longer than wide) down each side of the median line which joins cephalad with similar coloration along the lateral margins of the sclerite at cephalic three fourths. The sides of the thorax marked more or less with paler yellow. Antennæ and femora concolorous with the body ; all of tarsi, ends of the femora, the trochanters and all of tibiæ except exteriorly (laterally) along the edge (concolorous with body) pallid yellowish ; two proximal joints of antennal club suffused with yellowish ; coxæ blackish. Venation dusky with a tinge of yellowish.

Fore wings nearly uniformly, moderately fumated throughout but there is a darker spot at the knob of the stigmal vein, a larger darker area just caudad of the break of the submarginal vein extending about for equal distances proximad and distad along the caudal wing margin and another area at the caudal wing margin just in a line caudad of the substigmal spot and separated from a suffused extension of this and the caudal area under venation by an oblique clearer line (running distad with a slight cephalic inclination). Eyes and ocelli bright red. Caudal wings uniformly fumated.

I cannot reconcile this specimen with the original description of *acuminatum* from which I was forced to separate it. Colorationally, it appears to agree tolerably well with Perkins' description though the fore wings are plainly fumated throughout ; the mesoscutum and head are not brownish. Structurally, it differs as follows from the description given of the type species of the genus : The head is not strongly transverse and the ocelli are in a short triangle, the lateral ocelli not touching the eye margins but distant from them, distinctly farther from them than they are from each other. The 3-jointed antennal club is conic-ovate, widest at the first articulation as originally described but not widely dilated, normal in shape, the terminal joint conical as usual and not terminating in a stiff seta. The metanotum does not extend over the base of the abdomen, nor is the latter twice the length of the thorax but about one and a half times longer. The ovipositor is not exerted at all but the valves plainly project beyond the apex of the abdomen to a



length about equal to the length of the intermediate joint of the tarsi, somewhat as in *Neotrichogramma* Girault, not exerted for a length equal to that of the hind tarsi, which would be between a third and a half of the length of the abdomen. The abdomen is not compressed but normal and regularly conic-ovate. The fore wings bear eleven or twelve distinct lines of discal cilia, some of which may be composed of not more than three cilia; the stigmal vein bears a distinct uncus, not shown in the figure of *acuminatum* and the fore wings exceedingly short marginal fringes, barely visible ( $\frac{2}{3}$ -inch objective), nearly uniform in length, extending all around the margin of the distal half of the wing (distad of the venation) and each cilium no longer than the individual discal cilia; thus, they are not merely short as figured for *acuminatum* and plainly visible; in fact the marginal cilia are barely differentiated from the edge of the wing, especially along the apex (see remarks beyond and on *acuminatum*). Otherwise, the figure of the fore wing of *acuminatum* agrees with the fore wing of this species but the neck of the stigmal vein is slenderer here. The caudal wings in this specimen are moderate and uniform in width, not acuminate, obtusely pointed at the apex, bearing but a single line of discal ciliation which is somewhat cephalad of the midlongitudinal line of the wing; along the caudal margin, the marginal cilia are long, about two and a half times the width of the blade, the cilia of the cephalic margin not extremely short, distinct but only about three fourths the width of the blade. Marginal vein of fore wing long but shorter than the submarginal. The parapsidal furrows are complete. Tibial spurs single, moderate in size for the family, not as long as the proximal tarsal joint, on the cephalic legs absent; strigil absent; mesophragma present. Tarsal joints moderate, subequal, in the cephalic legs shorter and subequal. Legs normal. Mandibles apparently with four unequal teeth.

Antennæ normal, 6-jointed, inserted below the middle of the face; scape, pedicel, *1 ring joint*, which is inconspicuous being both short and narrow and hidden and a normal, conic-ovate, 3-jointed club, the intermediate joint of which is longest. Scape normal, cylindrical, not slender; pedicel moderately stout, usual, obconic, two thirds the length of the scape and as long as the intermediate club joint but not as broad. Club not terminating in a seta of any sort.

(From one specimen,  $\frac{2}{3}$ -inch objective, 1-inch optic, Bausch and Lomb.)

*Male* :—Unknown.

After making the above descriptive notes which are correct for the natural insect, I crushed the specimen on a slide (formerly lying in balsam naturally, that is, not crushed by the cover glass) whereupon the antennal club took the compressed and dilated form figured by Perkins and the minute ring-joint came into view. It is doubtless true, therefore, that the original description of the genus and species was based upon crushed specimens in balsam and thus is distorted more or less fantastically. There is an oblique line of discal ciliation in *dubium* leading back from the stigmal vein of the fore wing, consisting of 2-3 cilia, which are no longer than the other discal ones. The caudal femora have a polygonal, scaly sculpture. The antennæ are similar to those of *Uscana semifumipennis* Girault and *Pterygogramma* resembles *Uscana* in other respects; however, the

sparsely ciliated fore and posterior wings, the longer marginal vein of the fore wing (distinctly shorter than the submarginal in *Uscana*) and the longer, more pointed abdomen with the plainly exerted valves of the ovipositor are characteristics separating the two.

*Habitat* : Australia—Queensland (Nelson).

*Type* : No. Hy/790, Queensland Museum, Brisbane, the above female in xylol-balsam (mounted with a homotype female of *Aphelinoidea howardii*).

Since the above was written I have captured another female specimen of the genus from the same window, December 9, 1911. This specimen bore the distinct but short marginal ciliation as figured in the original description of *acuminatum* by Perkins ; otherwise, it could not be separated from the species described above, excepting that the discal cilia were in better condition ; thus along the cephalic wing margin is a straight paired line (the caudal line more regular, not confused with the margin) running directly from the apex of the marginal vein. Although these two specimens may be considered the same species, yet it is indeed remarkable how all the marginal cilia of the fore wing could have been so neatly severed from *dubium* in such a manner as to leave no trace of them ; and this is the more remarkable since the marginal ciliation of the caudal wings was uninjured and perfect. This fact is inexplicable on any other supposition than that the two specimens belong to distinct species of the genus and I shall so treat them for the present. The second specimen was *acuminatum*.

## 2. PTERYGOGRAMMA ACUMINATUM Perkins.

Perkins, 1906, p. 265, pl. XX. fig. 7 ; also introduction, p. xxvi.

“ Bundaberg, Queensland, from jassid eggs embedded in twigs of Eucalyptus.” “ Eggs of *Partessus syrtidis*.”

As recorded above I captured a single female specimen of this species on a window in men's quarters on a sugar farm at Nelson, N.Q., December 9, 1911. It was captured in practically the same place as was the specimen of *dubium*. Another female was taken in the same place, December 18, 1911. The species is similar to *dubium* except as pointed out above and as follows : The oblique line of discal cilia leading from the stigmal vein bears from 4-5 cilia which are distinctly longer than the other discal cilia, at least twice the size. The neck of the stigmal vein is slenderer and thus more distinct and its knob is less rounded, more ovate. The whole of the mesonotum (including mesophragma) appears to be very finely, densely, longitudinally striate (in reality, densely minutely roughened or alutaceous) but not so with *dubium* ; the caudal femora in *acuminatum* bear little or no polygonal sculpture. The fore wings are not so plainly and uniformly fumated as in *dubium*, their distal thirds clear or nearly. The species occurs at least in Bundaberg and Nelson, Queensland. The male of this genus was thought to be represented by the following species which, however, was found to be a female.

3. *PTERYGOGRAMMA SEMIFUSCIPENNE* new species.

*Female* :—Length, 0.60 mm. ; moderate in size for the genus.

General color black, the vertex and the whole of the dorsal aspect of the thorax lemon-yellow ; antennæ greyish ; legs black excepting trochanters, knees, distal ends of tibiæ and all tarsal joints which are white. Eyes and ocelli carmine. Sheaths of the ovipositor black. Fore wings deeply fumated proximad, the fumated area conspicuous and extending slightly beyond the tip of the stigmal vein, absent in the space between the latter and the cephalic wing margin. Distal third (or over) of fore wing clear.

Similar to the other species of the genus, *acuminatum* and *dubium*. At once distinguished from the latter by reason of the presence of marginal fringes on the fore wing and the nonuniformity of the fumation of that wing ; also in the more colored legs, especially posteriorly. From *acuminatum* this species differs in that the marginal cilia of the fore wing are longer, the fumation of that wing much more pronounced and more clearly limited, not extending distinctly distad of the apex of the stigmal vein and the proximal joint of the intermediate tarsi is not so long and slender as in *acuminatum* and *dubium* ; moreover, in regard to the latter, a distinct rounded area of minute discal cilia situated nearer the caudal margin under the middle of the marginal vein in *semifuscipenne* but farther disto-caudad in *acuminatum*, is much less noticeable if not absent ; at least the minute cilia are fewer and scattered. The posterior marginal cilia of the *posterior* wing are longer in *acuminatum*. About eleven lines of discal ciliation in the fore wing ; the oblique line leading back from the stigmal vein with only about three cilia which are intermediate in size between those of either *acuminatum* or *dubium*.

(From a single specimen, the same magnification.)

*Male* :—Unknown.

Described from a single female specimen mounted in balsam when alive, and captured from a window in the School of Arts at Nelson, N.Q., January 25, 1912. (A.A.G.)

*Habitat* : Australia—Queensland (Nelson).

*Type* : In the Queensland Museum, Brisbane, No. Hy/792, the foregoing female on a slide.

DIAGNOSIS OF THE SPECIES OF *PTERYGOGRAMMA* PERKINS.

## FEMALES.

Ovipositor long, that is inserted far up near the base of the abdomen and distinctly exerted at apex.

1. Fore wings with comparatively sparse discal ciliation, the lines some distance apart and not more than a dozen in number. Posterior wings with but a single line of discal ciliation. Substigmal spot more or less visible.

Marginal fringes of the fore wing practically absent, extraordinarily short ; fore wing slightly fumated throughout ; oblique line of discal cilia leading back from the stigmal vein not conspicuous and including not more than three cilia, which are not much larger than the other discal cilia. Mesonotum not longitudinally striate. Caudal coxæ polygonally sculptured *dubium* Girault.

- Marginal fringes of the fore wing distinct, moderately short ; fore wing fumated only out slightly beyond the venation ; oblique line of discal cilia rather conspicuous, each cilium distinctly larger than the other discal cilia ; mesonotum apparently finely, longitudinally striate ; caudal coxæ not sculptural polygonally . . . . . *acuminatum* Perkins.
- Marginal fringes of fore wing longer ; fore wing pronouncedly fumated but only out to the apex of the stigmal vein. Posterior tibiæ nearly all black . . . *semifuscipenne* Girault.

GENUS USCANA Girault.

1. USCANA GALTONI new species.\*

*Female* :—Length, 0.55 mm. ; smaller than the type species ; the abdomen more rounded, the ovipositor not exerted, the fore wings smaller and more densely and irregularly ciliate discally as compared with the species of *Pterygogramma*.

General color dusky, the vertex and mesonotum yellowish ; ocelli and eyes bright red, legs concolorous but trochanter, knees, distal third of tibiæ and proximal two tarsal joints pallid. Antennæ concolorous. Fore wings dusky or fumated out to the end of the venation, the remaining portion clear. Abdomen with faint, dusky transverse stripes.

Genitalia consisting of a needle-like ovipositor which arises at the distal two thirds of the venter from between two plates, and which project slightly beyond the apex of the abdomen ; this organ thus appears very much like the ovipositor in the females of *Trichogramma*.

As concerns this specimen the probabilities of its being (1) a male of *Pterygogramma*, or (2) the female of this genus distinguished from *Pterygogramma* by its short ovipositor should constantly be held in mind here. The last probability is the more certain and its characteristics appear to be due to specific distinctness rather than sexual.

The antennæ are like those of *Pterygogramma*, but the fore wings differ in discal and marginal ciliation. In regard to the former there are about eighteen lines which give the blade of the wing more the appearance of a *Trichogramma* than of *Pterygogramma* ; moreover the oblique line of discal cilia leading back from the stigmal vein includes five cilia and the line is curved and the cilia themselves no larger than those of the main discal ciliation. The marginal cilia differ from those of the female *Pterygogramma* in that they are less dense and shorter, arranged in fact as in *Trichogramma*. The venation agrees with that of *Uscana*. The posterior wings bear three lines of discal ciliation the first two paired and resembling the single line present in *Pterygogramma* ; but the third line is less distinct and has the cilia placed farther apart in the line. The marginal cilia of the posterior wing are shorter than with the last-named genus.

(From one specimen, same magnification.)

*Male* :—Unknown.

Described from a single female specimen captured October 6, 1911 from the windows of a barn on a wheat farm at Roma, Queensland.

\* This species was at first taken to be a *Pterygogramma* ; it differs from the type of its genus in being lighter in color, in bearing somewhat longer marginal cilia on both wings and narrower fore wings which are more regularly fumated.

Subsequently a second female was taken from a window in a hotel at Nelson, N.Q., January 26, 1912 (Cotype in U.S.N.M.).

*Habitat*: Queensland (Roma and Nelson).

*Type*: No. Hy/791, Queensland Museum, Brisbane, one female in xylol-balsam, Nelson.

Dedicated to Francis Galton.

#### GENUS APHELINOIDEA Girault.

##### 1. APHELINOIDEA HOWARDII new species.

*Female*:—Length, 0.60 mm.; moderate for the genus.

The same as *Aphelinoidea semifuscipennis* Girault in general coloration and appearance but differing in the following details. The fuscation of the fore wings is lighter, less distinct and only accented in a transverse dash leading out from the stigmal vein; it also extends somewhat less farther distad, only to the end of the venation, not a little distance beyond it. The whole of the dorsal aspect of the thorax is bright lemon-yellow, the vertex also, while the antennæ are dusky, with the proximal club joint and distal half of pedicel pallid yellowish; coxæ and femora dusky, the remaining portions of the legs mostly pallid.

The fore wings themselves are distinctly broader, bearing about thirty or more lines of discal cilia across their widest portion (in the type species only about twenty), broadest at their distal fifth (farther out toward the apex than in the type species); they also bear distinctly shorter marginal cilia, the longest (disto-caudad) not more than a twentieth of the wing's greatest width, very short (about twice the size of the discal cilia). The posterior wings also differ in bearing slightly shorter marginal cilia, in being distinctly broader and less acuminate and in bearing five lines of discal ciliation instead of three (one near the cephalic margin—the very short marginal cilia appearing as if paired with it—a second line paired along the distal half of the blade and a line near the caudal margin also paired along the distal half of the blade, making three complete lines and two half lines). The marginal ciliation of the posterior wing along the cephalic margin is shorter than with *semifuscipennis*. Distal tarsal joints dusky. Discal ciliation with a few lines occasionally regular. Otherwise approximately the same as the type species with which it is closely allied. A very beautifully marked species.

*Male*:—Unknown.

Described at first from a single female specimen captured from the panes of a window in a barn at the State Farm, Roma, Queensland, October 6, 1911. Respectfully dedicated to Dr. Leland Ossian Howard, Chief of the Bureau of Entomology, United States Department of Agriculture, Washington, D.C., U.S.A., whose broadmindedness has helped very much to advance science, applied and otherwise.

*Habitat*: Australia—Queensland (Roma, Nelson, Mareeba, Yungaburra and Tolga).

*Type*: No. Hy/797, Queensland Museum, Brisbane, one female (Roma) in xylol-balsam.



Subsequently, I captured two more females from a window in men's quarters on a sugar farm just outside of Nelson, N.Q., December 4 and 5, 1911 and one in a spider's web, same situation, December 17, 1911. Also two more of the same sex in the same place, December 21, 1911 and January 4, 1912; also a female at Tolga, December 28, 1911. On January 2, 1912, a seventh female was captured from the panes of a window in a carhouse at the depot at Mareeba, N.Q. Two females captured at Yungaburra, December 30, 1911 from a window were overlooked.

## 2. APHELINOIDEA SPECIOSISSIMA new species.

*Female*:—Length, 0.85 mm.; large for the genus. Fore wings with the apical third fuscous, then crossed by a hyaline band.

General color velvety black, marked with contrasting bright lemon-yellow as follows: The vertex and all of the dorsal aspect of the thorax (excepting pronotum, which is dusky) and base of abdomen (continuously), a rather large subquadrate spot along the dorso-lateral aspect of the abdomen about midway between the caudal margin of the yellow of the base of the latter and the apex and a much smaller spot, a dot, directly caudad of the centre of the large spot and distant about the width of the latter; also ventral third of face and the scape. Antennæ (excepting scape) and a broad band between the eyes, dusky; legs black, or nearly, the trochanters, knees and tips of tibiæ pallid yellow, the tibial tips nearly white, the latter color extending the whole of one aspect of the cephalic and intermediate tibiæ; tarsi yellow, the distal joints slightly darker. Eyes and ocelli ruby red. Tip of the valves of the ovipositor black, the ovipositor itself yellowish. Fore wings characteristic, fuscous but crossed at the apex of the venation by a broad hyaline band which expands caudad from each of its sides. The outer third or more of the wing is clouded, followed by the hyaline band; then the inner third or more of the wing is clouded but less uniformly, the fuscation accented in a crescentic comet-shaped area with its tail emerging from the caudal wing margin and its head entering at the apex of the venation; this accentuation coincides with the proximal margin of the discal ciliation. Proximad, most of the naked base of the wing appears to be subhyaline. Apical two thirds of the marginal vein black, proximal third yellowish white, remaining venation dusky yellowish. The yellowish white proximal third of the marginal vein contrasts. Venation of posterior wing dark. Posterior wings hyaline.

Fore wings very broad, pyriform, oblatly rounded at apex, only about one and a half times longer than broad, for the genus its marginal cilia very short, barely differentiated as in *Ufens*, its discal ciliation dense and fine, normal, but proximad in the fuscous comet-like area distinctly coarser but as dense, terminating near the caudal margin of the wing, opposite the middle of the submarginal vein, in a sharp point drawn out in a line of two or three cilia which points up toward the venation; under the latter, the wing is naked. The discal ciliation is distinctly less dense in the hyaline band and there the cilia commence to enlarge somewhat. Fore wings bearing about from 45-50 longitudinal lines of discal cilia across its widest blade portion. Marginal vein of fore wing distinctly shorter than the submarginal vein, rather broad, somewhat less elliptical ovate in shape and at the apex terminating abruptly in a small, sessile, knob-like stigmal vein which

appears like a drop of liquid adhering to the disto-caudal angle of the marginal vein. The stigmal vein, however, bears a rather prominent uncus which points disto-cephalad. The distal, black portion of the marginal vein bears a rather dense mass of stiff black bristles which are arranged in four or five longitudinal rows; the submarginal vein bears four or five bristles, scattered along it, the first (distal) two largest. Posterior wings rather broad, poniard-shaped, acute at apex, bearing three very distinct longitudinal lines of discal cilia, the lines complete, all meeting at the apex, the first directly at the cephalic edge of the blade, the second cephalad of the midlongitudinal line of the wing blade, broken or somewhat irregular before reaching apex, the third line longest, some distance out from the caudal wing margin. Marginal cilia at cephalic margin normal, short, slightly shorter than the marginal cilia of the fore wing (apex); those of the caudal margin moderately long, slightly longer than the greatest width of the blade, very much longer than those of the cephalic margin but at the apex only slightly longer than the short cilia of the cephalic margin. Venation of posterior wing clavate.

Tarsi 3-jointed, the joints of the intermediate tarsus longer than those of the others, moderately long, slender and subequal, the proximal joint thickest; joints of the other tarsi averaging about a third shorter, lengthening distad, the distal two joints subequal and longer than the proximal joint. Tibial spurs single, the cephalic one very minute (the strigil absent), the caudal one moderate in size, moderately small but the intermediate one long and slender, acuminate, about as long as the intermediate tarsal joint of either the cephalic or caudal legs. Legs normal. Parapsidal furrows complete; femoral impression absent. Abdomen about as long as the head and thorax combined, rather stout, conic-ovate, pointed at apex, the valves of the ovipositor projecting slightly beyond. Eyes naked; ocelli in a triangle in the centre of the vertex, all much closer to each other than any are to the eye margins. Mandibles with three teeth, the two outer (lateral) of which are acute, the third shorter and obtuse.

Antennæ 5-jointed—scape, pedicel, one ring-joint and a 2-jointed, conic-ovate and somewhat stout club; scape compressed, subequal to the distal club joint; pedicel long, obconic, two thirds the length of the scape; club stouter, shaped somewhat as in *Chætostricha flavipes* (Girault), its proximal joint forming a fourth of its length, subhemispherical, the distal joint conical, terminating acutely, broad at its base. Pubescence moderate, scattered.

Body bearing stiff bristles. In the discal ciliation of the fore wing there is one more or less distinct, straight line of cilia originating at the junction of the proximal fuscated area with the caudal wing margin and running straight distad to about the middle of the distal fuscated area where it becomes lost in the ciliation. Tarsal claws present.

*Male*:—Unknown.

Described from a single female specimen captured by sweeping low vegetation in a denuded gorge, a short way up the side of Pyramid Mountain, Nelson (Cairns District), N.Q., November 21, 1911. Afterward, another female was captured by sweeping in an open forest near Nelson, January 29, 1912. The yellow areas on the abdomen were not quite so conspicuous in this specimen.

*Habitat* : Australia—Queensland (Nelson). Elevation about 300 feet.

*Type* : No. Hy/800, Queensland Museum, Brisbane, one female in xylol-balsam (November 21, 1911).

This extremely beautiful species differs markedly from the other species of the genus—*semifuscipennis* Girault and *howardii* Girault—as may be seen by consulting their descriptions. From *semifuscipennis*, besides its general color, it differs in having broader posterior wings, much broader fore wings, especially more broadly, flatly rounded at apex, in bearing shorter marginal cilia on the fore wing, in being much larger and in its whole general appearance. From *howardii*, structurally, it differs also in being larger and more robust, in having the fore wings broader and more flatly rounded at apex, the ciliation denser but it is more like *howardii* than *semifuscipennis*. It bears less discal ciliation in the posterior wing than does *howardii*.

### 3. APHELINOIDEA WEISMANNI new species.

*Female* :—Length, 0.35 mm. ; small for the genus.

A species similar to the type species, the American *semifuscipennis*, but differing in coloration in having the proximal joint of the antennal club pallid forming a conspicuous pale ring around the base of that segment of the antenna. Also, the fumation of the fore wing extends only to the end of the venation, not slightly beyond it, and all tibiae and tarsi are pale yellowish and the scutellum, knees and trochanters, the scutellum more yellowish, lemon-yellow. Structurally, *weismanni* differs from the type species in bearing somewhat narrower fore wings which have shorter marginal ciliation, the longest only about three fourths the length of the longest marginal cilia of the fore wings of *semifuscipennis* ; the discal ciliation of the fore wings in the latter species are also somewhat coarser and there are several more lines across the widest blade portion. Otherwise, the same as *semifuscipennis*.

*Male* :—Unknown.

Described from a single female specimen captured from the windows of a barn on a wheat farm near Roma, Queensland, October 6, 1911.

*Habitat* : Queensland (Roma).

*Type* : No. Hy/799, Queensland Museum, Brisbane, the forenoted female on a slide.

Respectfully dedicated to Professor August Weismann of Freiburg for his part in stimulating the philosophy of biology.

### 4. APHELINOIDEA HUXLEYI new species.

*Female* :—Length, 0.55 mm. ; moderate in size for the genus.

The same as *howardii*, but the dorsal aspect of the thorax is darker, more brown, instead of bright yellow, the tibiae nearly all black and the tarsal joints shorter.

(From a single specimen, the same magnification.)

*Male* :—Unknown.

Described from two female specimens mounted in balsam and taken from the windows of a granary on the State Farm, Roma, Queensland, 6 October, 1911. Also one female, Yungaburra, N.Q., December 30, 1911 and another at Mareeba, N.Q., 2 January, 1912, both on windows.

*Habitat* : Queensland (Roma, Yungaburra, Mareeba).

*Type* : No. Hy/798, Queensland Museum, Brisbane, one female on a slide (Roma).

This is probably a color variant of *howardii*.

Dedicated to Thomas Henry Huxley for his dogged courage, tenacity of purpose and insistence on truth.

#### 5. APHELINOIDEA PAINEI new species.

*Female* :—Length, 0.50 mm; moderate in size for the genus.

General color bright orange-yellow, the sides of the thorax dusky; antennæ and legs paler yellow, both suffused somewhat with dusky; eyes and ocelli bright red; wings hyaline but sooty at base out just not quite to the apex of the venation, the fumation accented distad, especially just under the apex of the marginal vein. Vertex dusky and with a number of scattered, minute black dots. Sheaths of ovipositor dusky. Venation yellow, excepting the sooty marginal vein.

Differs from all members of the genus in being mostly yellow, the abdomen entirely yellow, the legs only lightly dusky on the femora and tibiæ. Nearest structurally to *howardii* and *huxleyi*, the posterior wings bearing five lines of discal ciliation and the fore wings of about the same width. From *howardii* it differs in having the antennal joints all shorter and stouter, the marginal ciliation of the fore wings somewhat longer; from the other species—*huxleyi*—in the same particulars. Thus, its coloration mostly distinguishes it.

(From a single specimen, the same magnification.)

*Male* :—Not known.

Described from one female specimen, mounted in xylol-balsam, captured at Nelson, N.Q., April 10, 1912 from the panes of a window in men's quarters on a sugar farm.

Respectfully dedicated to Thomas Paine, one of the manly defenders of truth and reason and author of the Rights of Man and the Age of Reason.

*Habitat* : Queensland, Australia (Nelson near Cairns).

*Type* : The above female in the Queensland Museum, Brisbane, No. Hy/990; mounted with a female of *Neobrachista fasciata* Girault, captured at the same time.

#### DIAGNOSIS OF THE AUSTRALIAN SPECIES OF APHELINOIDEA GIRAULT.

1. Fore wings fumated both proximad and distad, a hyaline band separating the two fumated areas at about the middle of the wing or more distad; a large naked area under the venation bounded caudad by sharply delimited discal ciliation. Posterior wings broad.

- Dorsal aspect of thorax, abdomen at base, vertex and a large subquadrate spot along dorso-lateral aspect of the abdomen bright lemon-yellow ; legs black, but knees, trochanters, tips of tibiæ pallid, the tarsi yellow. . . . . *speciosissima* Girault.
2. Fore wings fumated proximad only ; no discal ciliation under the venation, excepting two or three cilia. Posterior wings moderately narrow.
- Posterior wings broader, bearing five lines of discal ciliation ; antennal club yellowish. Fore wings broad, bearing about thirty lines of discal ciliation across their widest blade portion.
- (a.) Abdomen black.
- Dorsal aspect of thorax and vertex yellow ; coxæ and femora blackish, the knees, tibiæ and tarsi (excepting distal joint) pale yellow to silvery white ; robust . . . . . *howardii* Girault.
- Dorsal aspect of thorax darker, brown, verging to yellow caudad ; coxæ, femora and tibiæ black, white only at tips . . . . . *huxleyi* Girault.
- (b.) Abdomen bright orange-yellow.
- Body all bright orange excepting sides of thorax, femora and antennæ which are suffused with dusky. Legs pallid . . . . . *painei* Girault.
- Posterior wings narrower, bearing but three lines of discal ciliation ; antennal club with the proximal joint pallid white, the distal joint dusky yellow. Fore wings comparatively narrow with only about eighteen lines of discal cilia.
- Scutellum of thorax yellow ; coxæ and femora slightly dusky, the remaining portions of the legs pallid. Small . . . . . *weismanni* Girault.

SUBFAMILY TRICHOGRAMMATINÆ Girault.

TRIBE TRICHOGRAMMATINI Girault.

GENUS TRICHOGRAMMA Westwood.

1. **TRICHOGRAMMA AUSTRALICUM** new species.

A single male specimen of this species was captured by sweeping grass on sand along the left bank of the Pioneer River, Mackay, Queensland, October 15, 1911. A second specimen, a female, was captured by sweeping along the grassy margin of a (then) dry brooklet along the east bank of the Mulgrave River, near Pyramid Mountain, Nelson (Cairns), November 25, 1911. Three days later, another female was captured in bright sunlight, late afternoon. She was found ovipositing into a lepidopterous egg (presumably of a butterfly) which had been deposited upon the under surface of a low weed growing along the margin of a canefield. When captured by inverting a vial over it, the host egg was also introduced and though loose in the vial and the latter had been shaken up considerably, several minutes afterwards the little parasite was busily ovipositing into it again. The habitat at each place of capture was nearly similar, sand along a river, among lowly plants and grasses.

The species first identified as *minutum* Riley, the commonest member of the family, cannot be considered that species, since it differs as follows : The cephalic line of discal cilia of the caudal wing is absent, a characteristic which distinguishes this species from *retorridum* (Girault) ; the curved oblique line of discal cilia leading back from the stigmal vein includes not more than three



cilia, usually two (but sometimes five) ; the funicle joints of the antennæ are both wider than long ; the antennal pedicel is distinctly longer than the funicle, subequal in *minutum* ; the irregular patch of discal ciliation at the apex of the fore wing between the fourth and fifth regular lines (counting from cephalic margin) is absent. Otherwise (male and female) as in *minutum*. Colors : Dusky black, the scutellum, metanotum and vertex bright orange-yellow ; eyes and ocelli red ; fore wings fumated proximad as in *minutum*. Appendages dusky. Male the same. The fore wings bear about from 12-14 longitudinal lines of discal ciliation.

(From three specimens, the same magnification.)

Described from one male and two females captured as noted above and mounted in xylol-balsam.

*Habitat* : Australia—Queensland (Mackay, Mareeba, Innisfail, Herberton, Nelson).

*Types* : No. Hy/801, Queensland Museum, 1 ♂, 1 ♀ in xylol-balsam, two slides.

Subsequently I captured a fourth specimen, a female, taken from the panes of a window in men's quarters on a sugar farm near Nelson, December 9, 1911. This specimen differed from the others in being nearly uniformly yellow, and in having five cilia in the oblique line leading back from the stigmal vein. Another specimen, like the first ones, and a female was taken December 26, 1911 from the window of a foundry at Mareeba, N.Q.; two females were captured from the window of an empty dwelling at Herberton, N.Q. December 28, 1911 ; these specimens had longer marginal fringes on the fore wing disto-caudad, but the length of these fringes varies with the species of this genus if not in all genera of the family. On January 9, 1912, a male was captured while crawling over the panes of a window in a hotel at Cairns ; and on the 11th a female from another window at Innisfail (formerly Geraldton). Thus, the species appears to be rather common along the east coast of Queensland. More recently, a male specimen was taken at Cooktown, N.Q., February 3, 1912 from a window in an empty dwelling ; and at the same place, three females from a window in a hotel, February 6, 1912 ; and two others from the same window two days previously. These were all typical specimens.

A male was also captured at Nelson from a window, April 10, 1912, and a pair, April 23. Still later, a male at Nelson on April 30, 1912 by sweeping in a forest, a female May 24 in the same place and a female from a window, June 14, 1912.\*

## 2. TRICHOGRAMMA MINUTUM Riley.

This widely distributed, hence variable, species I think has been recorded from New Zealand but I am unable to give the citations here. However, as I treat fully of the distribution of this species in a paper which should have been already published in the Bulletin of the Wisconsin Natural History Society, Milwaukee but which I have not seen and thus cannot cite definitely, it is unnecessary to go farther into the matter here. A number of its hosts occur in New South Wales but I have not seen *minutum* in Queensland.

\* On July 3, 1912, I captured a female by sweeping grass over a small bog along the bank of a narrow forest stream near Nelson ; the stream itself was clothed narrowly along each side with typical jungle which gave way to forest a short distance from the water.

A month or two later, however, I captured a female of it at Rossville, N.Q., on a window, February 23, 1912. It was compared with North American specimens.

PARATRICHOGRAMMA new genus.

*Female* :—Head normal, the eyes large, the antennæ inserted ventrad of the middle of the face, 5-jointed—scape, pedicel, a ring-joint which is very minute, a subquadrate funicle joint smaller than the pedicel and a subpetiolate, short, solid, broadly ovate club. Mandibles tridentate, weak. Body short and rather compact, as in *Trichogramma* Westwood, the thorax and abdomen subequal in length, the parapsidal furrows complete, the mesoscutum large, cuneate, widest cephalad, over twice the length of the mesoscutellum which is subhemispherical, thus wider than long. Mesophragma penetrating half of the abdomen. Ovipositor not exerted, inserted slightly distad of the apex of the proximal half of the abdomen. The latter ovate to subcylindrical, sessile.

Fore wings nearly as in *Trichogrammatoidea* Girault, their discal ciliation sparse but arranged in regular radiating lines, the oblique line of cilia running back from the stigmal vein absent, the marginal cilia short. Venation forming a flat bow and not approaching the costal wing margin, rather peculiar, the submarginal vein long, apparently breaking or curving twice before reaching the marginal but in reality changing angle at its distal two thirds and there thickening and becoming colored, resembling closely the stigmal vein; between the clavate end of the submarginal vein and the foot-shaped clava representing the stigmal vein is the colorless, gently curved, slenderer marginal vein; the latter is shorter than the stigmal vein which in turn is only two thirds the length of that part of the submarginal vein distad of its curve; the stigmal vein bears three prominent setæ (plus several others), the distal end of the submarginal vein two. Fore wing fumated proximad. Posterior wings moderately broad, posteriorly with long marginal cilia and with but a single, inconspicuous line of discal cilia. Tarsi 3-jointed, the joints moderate in length and subequal, those of the cephalic legs shorter, the proximal joint somewhat the shortest of the three; strigils absent; tibial spurs single, moderate in length, those of the intermediate legs longest, somewhat over two thirds as long as the proximal joint of the intermediate tarsi.

*Male* :—Unknown.

A genus resembling and allied with *Trichogramma* Westwood from which it differs in bearing an undivided funicle and less strongly developed venation, the stigmal vein being practically but a clavate ending of the marginal vein. It appears to be a more primitive type than *Trichogramma* or rather a more recent one, the funicle being reduced to one joint and the venation degenerated.

*Type* : The following species.

1. PARATRICHOGRAMMA CINDERELLA new species.

*Female* :—Length, 0.60 mm.; moderate in size for the family.

General color dusky yellowish, the color irregular, more yellowish in some places (around the mouth and eyes, at base of abdomen), the legs and antennæ dusky or greyish black, in the former excepting the trochanters, knees, distal fourth of tibiæ and proximal two tarsal joints

which are pallid or whitish ; club of antennæ with some yellowish along the edges. Venation pallid, excepting the brownish yellow distal end of the submarginal vein and the stigmal vein. Fore wings fumated proximad out as far as the middle of the marginal vein, the fumation sooty black and not uniform, the rest of the wing very clear. Eyes bright red. Caudal wings colorless.

Sculpture of the body inconspicuous, that of the mesonotum, however, alutaceous, traced with irregular polygonal areas. Fore wings with about five radiating, regular lines of discal ciliation running from the apex and none long. Marginal cilia of fore wing longest disto-caudad, there twice longer than the very short cilia disto-cephalad and at extreme apex. Caudal wings transparent, except the yellowish apex of the venation and at extreme base, subpetiolate, the portion of the wing proximad of the end of the venation slenderer but not extremely so, the blade moderately wide, without discal ciliation, excepting a colorless line along the cephalic margin, the marginal cilia caudad long, one and a quarter times the greatest width of the blade.

(From one specimen, same magnification.)

*Male* :—Not known.

Described from a single female specimen captured December 4, 1911 on the pane of a window in the mess of workmen's quarters on a sugar farm, near Nelson, Queensland. Later, on December 20, 1911 a second female was taken from a spider's web against a window in the same place. And a third female from a window in an empty dwelling at Thursday Island, Torres Strait, March 13, 1912.

*Habitat* : Australia—Queensland (Nelson, Cairns District and Thursday Island, Torres Strait.)

*Type* : No. Hy/802, Queensland Museum, Brisbane, one female in xylol-balsam (Nelson).

## 2. PARATRICHOGRAMMA FUSCA new species.

*Female* :—Length, 0.60 mm. ; normal in size for the genus.

The same as *cinderella* but differing structurally as follows : The venation of the fore wing is uniform and continuous and forms toward the end a gentle curve ; the fore wings are slightly fumated throughout and more densely ciliate (about eighteen lines of discal cilia) discally, the lines of cilia long and apparently there is no noticeable sootiness proximad ; the antennal club-joint is longer. Otherwise, same as the type species. The venation dilates a little at the apex of the marginal vein.

(From one specimen, the same magnification.)

*Male* :—Unknown.

Described from a single female specimen remounted in xylol-balsam from alcohol and captured from the window of a dwelling at Cooktown, N.Q., February 3, 1912.

*Habitat* : Australia—Cooktown, Queensland.

*Type*: No. Hy/803, Queensland Museum, Brisbane, 1 ♀ in xylol-balsam (mounted with the type female of *Polynema spenceri* Girault\* and two trichogrammatids).

What I believe is the male of *cinderella* was captured on the window of a hotel at Cooktown on February 6, 1912, running over the pane with several specimens of *Trichogramma australicum* for which I mistook it. It agrees very well with *cinderella* but I shall not attempt to identify it with that species. The structural characters are nearly the same as with the female but the funicle joint has the peduncle shaped like an extension of one side, while the apex of the joint is scooped out somewhat; the peduncle is also longer and more conspicuous and the funicle itself longer.

GENUS TRICHOGRAMMATOIDEA Girault.

1. TRICHOGRAMMATOIDEA FLAVA new species.

*Female*:—Length, 0.33 mm. Minute, barely visible to the naked eye. Similar to *nana* but uniformly orange-yellow, the wings hyaline or nearly and more rounded at apex, flatly rounded in *nana*. It is much smaller than *lutea*, has the fore wings very lightly fumated out to the end of the venation and the discal ciliation sparse and inconspicuous.

(From a single female, the same magnification.)

*Male*:—Not known.

Described from a female captured as noted below.

*Habitat*: Australia—Rossville in the Cooktown District, N.Q.

*Type*: No. Hy/995, Queensland Museum, Brisbane, the one female mounted in xylol-balsam.

2. TRICHOGRAMMATOIDEA NANA (Zehntner).

A single female of this characteristic species was captured by myself from the panes of a window in a private residence at Kuranda, N.Q., November 4, 1911. Formerly it has been known from Java only. Being parasitic upon the eggs of sugarcane insects, its occurrence here is not strange. It is an introduced species most probably.

But subsequently, another female of the genus was captured in a store, February 23, 1912 in the little mining settlement of Rossville, N.Q., about thirty miles back through the forest from Cooktown. This specimen appeared to represent an unknown species and I have described it just above.

TABLE OF THE AUSTRALIAN GENERA OF THE TRICHOGRAMMATIDÆ.  
FEMALES.

The genera marked with an asterisk are new and described in the preceding pages.

SUBFAMILY I. CHÆTOSTRICHINÆ.

Submarginal vein of fore wing reaching the costal margin at the point where it joins the marginal vein, the latter straight or nearly, the stigmal vein forming more or less of an acute angle with it. Venation of the fore wing straight.

\* Described in Part II.

## TRIBE I. CHÆTOSTRICHINI.

The funicle of the antennæ is present. The bulk of the Australian genera belong to this tribe. Ovipositor not exerted nor prominent, nor are its valves.

Antennæ 9-jointed.

Two ring-joints and a 2-jointed funicle.

Fore wings with the discal ciliation normal for the Chalcidoidea.

Fore wings moderate in width, the marginal cilia at apex short; abdomen conic-ovate; pedicel of antenna larger than funicle; stigmal vein nearly neckless .. .. .

**Brachistella** Girault.

Fore wings with the discal ciliation arranged, more or less, in longitudinal lines.

Stigmal vein sessile or neckless; oblique line of discal cilia from stigmal vein may be present.

Fore wings nearly as in *Oligosita*; their discal ciliation sparse, their marginal cilia moderately long; joints of antennal funicle wider than long .. .. .

**Abbella** Girault.

Antennæ 8-jointed.

One funicle joint; two ring-joints.

Fore wings broad, distad with long marginal cilia; club 3-jointed; ovipositor only half the length of the abdomen .. .. .

**Brachista** Haliday.

Fore wings not very broad, distad with short marginal cilia; club 3-jointed; ovipositor inserted at base of abdomen and extending to tip .. .. .

**Neobrachista** Girault \*

Two funicle and ring joints. Marginal and submarginal veins nearly equal, short.

Antennæ with the funicle apparently twisted and indistinctly divided obliquely, much larger than the pedicel; male antennæ different; abdomen short, stout, obliquely truncate at apex. Fore wings short and rather broadly rounded at apex, the discal ciliation with some peculiarly distinct lines; marginal cilia of the fore wing very short; neck of stigmal vein not slender. Ovipositor short, inserted at the middle of the venter .. .. .

**Ufens** Girault.

Antennæ with the funicle normal but shorter than the pedicel; male antennæ not different; abdomen longer than the thorax, conic-ovate, acute at apex; fore wings slenderer, without some of the lines of discal ciliation peculiarly distinct; marginal cilia moderately short; neck of stigmal vein slender. Ovipositor long, inserted at base of the venter .. .. .

**Japania** Girault.

Antennæ 7-jointed with one ring-joint.

Funicle 1-jointed, the club 3-jointed. Discal cilia of fore wing sparse and more normal than otherwise. Marginal vein very long; ovipositor inserted at base of venter.

Fore wings with the longest marginal cilia subequal, more or less, to the greatest width of the blade, the wings slender; abdomen long; stigmal vein subsessile. Club slender .. .. .

**Oligosita** Haliday.

Funicle 2-jointed, the club 2-jointed. Discal cilia of fore wing moderately dense and in lines; marginal vein very short and stout; ovipositor short, inserted toward tip of venter.

Fore wings with the marginal cilia very short; stigmal vein subobsolete; antennal club broad and conic .. .. .

**Brachygramma** Girault.\*



- Antennæ 6-jointed with one ring-joint, the funicle 2-jointed. Marginal vein short. Discal cilia of fore wing moderately sparse and in regular lines. Fore wings with the marginal cilia between a fourth and a fifth the greatest width; with the habitus of *Trichogrammatoidea* .. **Pseudogramma Girault.\***
- Either the ovipositor or its valves is distinctly exerted for a length equal to a fifth or more of that of the abdomen.
- Antennæ 9-jointed with three ring-joints.
- Ovipositor inserted slightly proximad of the middle of the venter; funicle 1-jointed; marginal vein short, the discal ciliation of the fore wing dense and normal but with a few lines peculiarly distinct and regular; marginal cilia short; submarginal vein very long; with a habitus of *Neobrachista*. Very robust for the family .. **Neobrachistella Girault.\***
- Antennæ 7-jointed with one ring-joint.
- Funicle of antenna 1-jointed, the club slender; marginal vein long; discal cilia of fore wing in regular lines, the marginal cilia moderate in length; ovipositor exerted for about a third of the length of the abdomen. With the habitus of *Lathromeroidea* .. **Centrobiella Girault.\***
- Funicle of antenna 1-jointed, the club 3-jointed and swollen; stigmal vein distinct; discal cilia of fore wings rather dense, normal; marginal cilia moderate in length; ovipositor exerted for not more than a sixth the length of the abdomen. With the habitus of *Tumidiclava* .. .. . **Neocentrobia Girault.\***

TRIBE 2. LATHROMERINI.

The funicle of the antenna is absent. Four genera peculiar to Australia belong here together with three others more widely distributed.

- Antennal club more than 3-jointed.
- Antennal club 5-jointed.
- Antennæ 9-jointed with two ring-joints; marginal vein long and slender.
- Antennal club ending in a spinelike seta; ovipositor inserted at base of the abdomen, the latter as long as the head and thorax combined; no oblique line of discal cilia from the stigmal vein; marginal cilia of fore wing short, much less than a fourth the greatest wing width. Fore wings moderately broad. Body long .. .. **Lathromerella Girault.\***
- Antennal club not terminating in a spinelike seta; ovipositor the same but the abdomen short and acute, the body short and compact; an oblique line of discal cilia leading back from the stigmal vein; marginal cilia of fore wing moderate in length, about a fourth or more the greatest wing width. Fore wings narrow .. .. **Lathromeroidea Girault.\***
- Antennæ 8-jointed with one ring-joint; marginal vein short.
- Antennal club clothed with long, stiff, spinelike setæ and fusiform-acuminate in shape, the terminal joint long and acuminate, the proximal joints transverse; fore wings as in *Ufens* as is also the body .. .. . **Haeckeliana Girault.\***
- Antennal club 3-jointed.
- Antennæ 6-jointed with one ring-joint, the club normal, not swollen.
- Marginal vein of fore wing longer, subequal to the submarginal or nearly, about thrice the length of the stigmal vein; abdomen long and conic, the long ovipositor inserted at its base and slightly exerted beyond its tip; discal cilia of fore wing rather sparse but in regular lines .. .. . **Pterygogramma Perkins.**

- Marginal vein of fore wing shorter, only about half the length of the submarginal and about twice the length of the stigmal; abdomen short, the ovipositor short, inserted near the middle of the venter or farther distad and not at all exerted; discal cilia of fore wings dense, less distinctly in regular lines .. .. . **Uscana** Girault.
- Antennæ 7-jointed, the club 3-jointed and swollen; two ring-joints.  
Marginal vein long but the stigmal a mere spur from the marginal, apparently absent; club terminating in a spinelike seta .. .. . **Tumidiclava** Girault.
- Antennal club 2-jointed.  
Antennæ 5-jointed, the club cylindrical; discal ciliation dense and normal, the marginal cilia short; marginal vein more or less swollen; stigmal vein very small .. .. . **Aphelinoidea** Girault.
- SUBFAMILY II. TRICHOGRAMMATINÆ.
- Submarginal vein of fore wing not reaching the costal wing margin but joining directly with the incurved proximal end of the marginal vein, the latter curved, the distal end of the submarginal vein, the marginal and stigmal veins forming a regular sigma or arch whose apex is about at the middle of the marginal vein where the latter reaches the costa; or the veins forming a regular bow. Venation of the fore wing curved.
- TRIBE 1. TRICHOGRAMMATINI.
- The venation of the fore wing forms a bow.
- Antennal club solid, comprising but a single joint; ovipositor not exerted; one ring-joint.
- Antennæ 6-jointed, the funicle 2-jointed.  
Fore wings relatively broader, the discal and marginal ciliation short; funicle without minute, bladder-like appendages; male antennæ not distinctly segmented, apparently but 4-jointed, the distal joint long and nodular .. .. . **Trichogramma** Westwood.
- Fore wings relatively narrower, the marginal ciliation distad moderately long; funicle with minute bladder-like appendages; male antennæ distinctly 8-jointed .. .. . **Trichogrammatoidea** Girault.
- Antennæ 5-jointed, the funicle 1-jointed.  
As in *Trichogrammatoidea* nearly; marginal cilia of fore wing short; venation a very flat bow; stigmal vein a mere footlike clava from the marginal vein .. .. . **Paratrichogramma** Girault.\*

TRIBE 2. POROPEINI.

The venation of the fore wing forms a sigmoid arch.  
There are no Australian genera belonging to this tribe.

LITERATURE REFERRED TO.

1906. Perkins, R. C. L. Bull. No. 1, Division of Entomology, Hawaiian Sugar Planters' Association, Honolulu. Introduction and part 8.
1910. Idem. Fauna Hawaiiensis, Cambridge, England, II., part VI.
1911. Girault, A. A. The Entomologist, London, June.